The Builder.

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ILLUSTRATIONS.

Doorway, National Portrait Gallery, Edinburgh ..... Dr. Rowand Anderson, Architect.
Buccleuch Memorial, Edinburgh ..... Dr. Rowand Anderson, Architect.
"Foxcombe," Oxfordshire ..... Messrs. Ernest George & Yeates, Architects.
Oak Reredos, Church of St. Thomas-at-Cliffe, Lewes ..... Mr. Thos. Garratt, Architect.
Battersea Working-class Houses Competition: No. 1 of the First Premiated Set of Plans ..... Messrs. Smith & Weald, Architects.

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The Royal Academy.

IT is not a comfortable reflection, to the patriotic mind, that we should be obliged to confess that what distinction there is in this year's Academy Exhibition is mainly owing to the work of an American-born artist educated in Paris. But so it is. As an English artist—not a painter—candidly observed, "Without Sargent, where would the show be?" Of Mr. Sargent's two trio portrait groups, that in Gallery II. and that in Gallery IV., the critics seem to have thought it right to express a preference for the indoor group in Gallery IV.; why, one cannot imagine, except that to express a preference for the less obviously striking of two pictures implies that the critic has a fine-drawn standard of his own, entirely apart from the judgment of the crowd. But in this case we think that the crowd, which unquestionably prefers the picture in Gallery II. "The Ladies Alexandra, Mary, and Theo Acheson" (89), is in the right. The picture is a triumphant success; it impresses one as Reynolds *redivivus*, with even something added. The three ladies are grouped, two standing and the centre one seated, around a stoneware vase of heroic proportions, from which springs an orange tree, some of the fallen fruit of which forms an incident of colour in the foreground. The ladies are in white, save that a striped sash of black and white plays around one of them; like the vase they are of heroic proportions (in height); they are certainly abnormally tall, but this may be accounted a noble error, since it adds to the grandeur of the picture. Painters complain that the faces of the standing figures could not show light against the sky; but we deny that they do so; they are quite sufficiently detached from the background. There is a great style about the whole work, such as perhaps no other portrait painter of the day can give; it may be admitted, perhaps, that for an open-air group it is not an orthodox *plein-air* picture; but we can forgive that, when we remember for what crudities of colour and texture *plein-air* has been responsible. The other portrait group, "The Misses Hunter" (229) shows three ladies seated in an interior, two in dark and one (the one in shadow) in white raiment; this also is a very fine picture, but not with the overpowering brilliancy of the other. Exceptionally beautiful too, is the same artist's single-figure portrait of "The Duchess of Portland" (323), standing by a sumptuous white marble chimney-piece, in evening dress with a crimson opera cloak; a portrait *de luxe*, more highly finished (in the superficial sense) than is usual with the artist, but quite captivating in its way. As a pendant to this is judiciously hung M. Carolus Duran's portrait of "Mrs. C. S. Henry" (327). It is curious to compare the two. The French artist undoubtedly paints hands and face with greater completeness and finish (though in the present instance Mr. Sargent has bestowed more trouble than usual on the hands of his sitter), but his colour is duller and more conventional—in this example at least; and in effectiveness and power there is no doubt that the American artist, who was we believe a pupil of the French one, forces his former master into the second place.

Though the great pictures of the year are portraits, beyond them portraits are neither more numerous nor more remarkable than usual. Mr. Fildes's large portrait of the King—a "State" portrait and hung in State surroundings, is necessarily too prominent to escape notice, but is not otherwise very noticeable. It is of course difficult to make anything very recondite out of a showy uniform and other trappings; there are painters, however, who could have made such a work less hard and commonplace than this; but the English court has almost always avoided employing artists of too independent genius, and this inherited prejudice seems to be kept up in the present reign. There are some very good portraits beyond those we have mentioned, but hardly any great ones. Mr. Orchardson's portrait of Mr. Asher (10) is in his best way; an ostensibly realistic portrait lifted out of commonplace by its subtleties of colour. M. Benjamin-Constant's portrait of Mrs. Walter Parrott (107), like the examples at the Grafton Gallery mentioned last week, is hard and brilliant in character, and more remarkable in the painting of the costume and accessories than in that of the face of the sitter. Sir L. Alma-Tadema's half-length of the High Sheriff of Surrey (171) is a highly-finished work in his peculiar and rather enamelled style in portraiture; Mr. G. F. Watts's head of General Baden-Powell (177), on the other hand, is one of those simple and unpretending portraits in which he seems nevertheless to give the essential aspect and character of the sitter. Mr. Sargent's full-length of Lord Ribblesdale (175) seems to have been suggested by Mr. Whistler's Comte Montesquieu-Fésenzac; and, like that curious though remarkable work, is too tall in its proportions. Mr. Shannon has given a charming air of poetic conception to his portrait of Lady Marjorie Manners (202), a picture rather than a portrait; while in his likeness of Mr. Phil May in hunting costume he seems, on the other hand, to have aimed at a prosaic realism which suggests a suspicion of caricature, or as if he wished to assimilate the likeness of the artist to the character of the studies of the lower order types for which he is famous; Mr. Phil May treated "*en* Phil May"; it is not an engaging work to look at. Mr. Ralph Peacock has painted a sufficiently faithful portrait of Mr. Holman Hunt—it hardly draws further praise; and Mr. Frank Bramley has struck an original vein in his *laissez-faire* portraiture of "Mr. and Mrs. Chalmers" (482), the gentleman blowing a match in his hat to light his pipe while the lady looks on; a clever picture which looks, perhaps, a little too humorous for a portrait, but is at all events full of life.

The President, Sir L. Alma-Tadema, and Mr. Orchardson may be said to divide the honours of the large room. Sir E. Poynter's small picture, "Storm Nymphs" (149), shows a wreck, around which and its spoils three nude nymphs are sporting, human in appearance, but we presume not to be taken as humans in any other sense. The picture

is a masterpiece of figure drawing, the foreshortened figure of the recumbent nymph nearest the foreground especially; but it strikes one that the reflection from the rug on which she lies (part of the spoils of the wreck) has tinged her side with rather too heavy and heated a tone for nude flesh even in this light. However, the picture is a masterly piece of art; it means nothing, it tells no tale; it is *L'Art pour l'Art* simply, and from that point of view is a most complete and satisfactory production. Sir L. Alma-Tadema's one work, hung in the usual place, is even smaller in scale than usual; it looks as if the painter had been thinking of emulating Meissonier in minute finish. It represents "Caracalla" (201) entering possibly his great Thermæ, or it may be his palace, through an entry with bronze folding-doors whose patina is most subtly indicated; he walks over a mosaic floor not laid in any pattern, but still a joy to the eye from the perfect way in which it is represented; before him are kneeling couples of maidens to keep his path strewn with flowers; at the entry, in bright sunlight, are one or two gaily-clad figures of his suite; in the background a vista of marble columns, railings, &c. The whole is a perfectly finished momentary glimpse into the life of Imperial Rome; a revival in which not a detail seems forgotten. Mr. Orchardson's picture "The Borgia" (190) is a somewhat unusual one for him; the scene is that of an outdoor banquet in an Italian garden, under pines whose heavy masses of foliage fill up the top of the picture and seem to lower portentously over the scene below, where a guest falls forward on the table poisoned, "The Borgia" looking on; apparently the other guests have had the good taste to feel the incident an embarrassing one, and have fled the feast, or possibly they dreaded the further circulation of the poisoned cup. This is a remarkable picture, and grows upon one, although the story is but a commonplace; not only has it all the subtlety of colour which is never absent from Mr. Orchardson's works, but there is a kind of sinister terror about the whole aspect the scene which harmonises with the idea of the crime represented. There are many fine points in the execution of the details, and altogether it is a work worthy of the artist's high reputation.

Of other subject pictures there are not many to attract those who look at Exhibitions mainly from the point of view of art, though there are plenty for the public who go to look at pictures as anecdotes, and many of them indeed poor enough; pictures in which there is no recognisable motive except that of producing a marketable article. Among the few which may take a higher stand than this are Sir W. Richmond's stately picture of "Hera in the House of Hephaistos" (126), and Mr. Dicksee's "La Belle Dame sans Merci" (13), which is however a not very new rendering of a legend much hackneyed in painting; it is sufficiently expressive but rather heated in colour. Mr. Briton Riviere's "Aphrodite" (37) is mainly an excuse for painting a collection of animals following the goddess, who is no goddess, but a modern young woman of blonde Scottish type, masquerading as Aphrodite. Mr. Solomon's "Psyche" (118) is another example of the reduction of a poetic legend to materialism; his Psyche is merely a clever nude study, with no idealism of any kind about it. Mr. John Collier's "A Confession" (320), meant to be a moment of pathetic interest in modern life, does not tell its story; which of the two is confessing? It is impossible to say. Mr. Tuke's "The Run Home" (392) is but a feeble and thin representation of yachts and their navigators, but in "Ruby, Gold, and Malachite" (739), boys bathing in a sunlit sea, he is himself again, and has produced a bright and delightful picture. Mr. F. D. Millet's "Proclaiming the King" (468) is a scene in some loyal village, a large work painted to be popular during the present season, and which shows most careful and conscientious study of the various heads in a crowd of people; in this respect the work deserves all praise, but we cannot say that it interests us particularly. "Napoleon's Abdication" in the same room, by Mr. Eyre Crowe, is we should think about the worst Napoleon picture ever painted; there is not even the slightest suggestion of Napoleon in the figure which, according to the subject of the picture, must be intended for him; it might be labelled "Puzzle: To find Napoleon."

Among smaller and more unpretending works which have an intellectual or artistic interest a good many might be named; works which the general public pass over with little notice, but which are of more real interest than many of those dealing nominally with more important subjects. Among these are three of Mr. Wetherbee's idylls, in which a single figure or group gives the human note, as it were, to a landscape; these are numbered 354, 360, and 706; the latter, "When the Heart is Young," a little rural love scene in one corner of a quiet landscape, the sky crossed by a few thin trees, is a beautiful little work. Mr. Lybaert, in his "Madonna of Ghent" (22), repeats his experiment of last year, of a mediæval figure backed by a suspended curtain of very rich embroidery very realistically painted; but the scheme is less effective when repeated than it was at first sight. Mr. La Thangue, in "Goslings" (50), repeats also a former favourite incident of geese (or goslings) straggling through flecks of sunlight; but this is a touch of nature's picturesque which does not tire so much by repetition. Mrs. Hunter's "Seekers: Where Shall Wisdom be Found?" (94), an interior group of an old man poring over books and a child with her doll, besides being an effective piece of painting, is a picture which suggests a thought, as so many do not. Mr. Boughton's "Tanagræan Pastoral" (160) is pretty, but hardly antique in spirit. Mr. Robert Fowler shows a fine feeling for colour in his "Sleeping Nymphs Discovered by a Shepherd" (193). Mr. Orchardson's small scene "The Story of a Rose" (221), without telling the story, suggests a whole one-volume novel. Mr. John Collier's "The Plague," a large picture, in which a lady in rich attire lies apparently dead on the floor, does not sufficiently explain the action of the man in the scene, and is hardly interesting in an artistic sense. Mr. Dollman has hit upon a new kind of incident in "Kismet" (412), where a man with a staff has fallen dead or exhausted in the desert, and is watched by self-interested vultures; not a pleasant picture, but a somewhat tragic one. Miss Kemp-Welch, in "The Morning" (233), shows a trooper dead on the veldt, with his horse standing over him; here also the tragedy of the situation is well and seriously conveyed; her other horse picture, "Ploughing on the South Coast" (264), is not very interesting; nor is Mr. Stanhope-Forbes's "Lighting-up Time" (40) equal to the best mark of his previous works. Mr. Arthur Wardle's "A Sea-monster" (55) is a clever study of a sea-shore scene, especially in the treatment of the wet seaweed in the foreground.

There are many landscapes at the Academy; many pretty ones, several which give very good studies of special effects, such as Mr. Farquharson's snow scene on a winter's night, in Gallery I.; a very successful piece of realism. But realism is not landscape art. Mr. Leader continues diligently to paint his hard and carefully-finished scenes, which look (some of them) as if you could walk into them; dear are these to the public, for that is exactly the kind of landscape painting they can appreciate. Mr. David Murray began by being, or promising to be, a real landscape artist; we remember a wide field of his with a great expanse of sky over it, which represented some of the finest qualities of the art; it had scale, breadth, and concentration of purpose. But he has not carried out this promise; and without being as hard and mechanical as Mr. Leader, he paints only scenes as they are; pretty bits, in which all is scrappy and devoid of dominating motive. That is the weakness of English landscape painting at present; there is a great deal of pretty and picturesque painting, but an entire want of a great style in this branch of the art. Mr. Alfred East last year did rise to a style in one at least of his landscapes at the Academy, and in one that was at the Salon, but he has not kept up to the same level this year. Mr. Farquharson has got a striking natural scene in his "Mountains rough with Crags" (250), but it does not impress us more than with the feeling that it must be a very good and careful representation of the place; we do not get further than that. Mr. H. W. B. Davis belongs rather to the company of painters of pretty landscapes, but then he is never hard, and he puts a sentiment into them; nevertheless, his "Autumn Evening" (68) impresses one as somewhat weak in conception and execution: his "Chartley" (196), with some finely painted white cattle, is the better though perhaps the less generally attractive work. As to Mr. Parsons's "Poplars" (17), it is the type of conventional landscape painting, a made-up-effect, like a landscape in a play. The only landscape of the year which has really a great style about it is that by the last new Associate among landscape painters, Mr. Corbet. His "Sunrise" (418), seen among marshy ground in Italy, with the chain of the Apennines (we presume) as a distance, is not nearly so beautiful or striking in its natural features as many other landscapes in the gallery; it is the treatment that does it, and wherein this consists is indeed difficult to define in words; but it is to be felt by those can look at landscape as something more than a mere imitation of nature; it is a scene treated as a whole and with an eye to total effect, not to mere detail; it is a work with style. Among clever landscapes with a less serious aim are Mr. Macarthur's "Worcestershire" (298), an apple orchard dappled with sunlight, and Mr. La Thangue's "Marsh Marigolds" (74). Then there is

Mr. Mark Fisher's "Wayside Pond" (103), which has all the fine characteristics of style that have always distinguished his work, but we wish he would bestow his fine talents and artistic sense on more important subjects, instead of almost throwing them away on angles of lanes and ponds.

In sea-painting things are very different; there the English school may rightly be proud of its productions, which are unequalled in any other country; the French, who perhaps beat us in every other field of art, are nowhere beside us in sea-painting. Mr. Hemy is at his best in his two principal works, "The Pilot" (178), and "The Crew" (326); the latter represents a boat in a heavy sea with those of the crew who have been able to escape from the foundering ship; apparently they have left two of their number to drown, but it is easy to understand that they cannot put their boat about when running with one sail before such a sea. What one does not understand so readily is the scale of those two figures in comparison with the wave coming after the boat; surely they are somewhat too small in scale. Mr. Wyllie has painted a large picture of pure sea and nothing else—"A Whole Gale of Wind" (239) showing its effect on the shore breakers: the sea has that greenish tint which another painter, Mr. Shaw, affected in all his paintings, and which is often seen in rough weather in the neighbourhood of sandy beach. We prefer however a picture from Mr. Wyllie with ships in it, because he understands them so well. Mr. Hook's "Where the Green Sea Meets the Shingle" (187) is beautiful and fresh in colour, but a little wanting in force in comparison with many of his former achievements. Mr. J. R. Reid may be classed among the sea-painters, for the real interest both of "A Baby Crab" (72) and "The Pilots Peepshow" (381) lies in the iridescent treatment of the sea surface—perhaps a little overdone, but at all events it is full of life and colour. Mr. Peter Graham's "Where Only Sea-birds Roam" (144) would of course take rank as one of the leading sea-pieces if we had not seen the same effect and colouring so often before. Painting, treated in this way, with constant repetition, becomes really a kind of acquired sleight of hand, and loses its quality of art.

Of the sculpture (not very remarkable this year) we will say something on another occasion.

RECENT FIRE LOSSES.

DURING the last fortnight London has been a scene of several catastrophes due to outbreaks of fire. Two of these involved loss of life, two solely loss of property. Regarding fires involving loss of life, we refer to the outbreak at Hackney and the outbreak at St. Luke's. Regarding fires involving loss of property, we refer to the serious loss at the Barbican on April 21 and at the Docks on May 5. From the architect's point of view the Hackney fire and the Barbican fire are the two of primary interest, the Hackney fire affording us an example of loss of life through deficient planning and construction, and the Barbican fire affording us an example of the additional risk incurred by a lack of preventive measures.

Dealing first with the Hackney fire, we find the unfortunate arrangement of a building set back from the frontage line of the thoroughfare with the intervening space covered by a shop. The approach to the house was by a passage on one side of the shop, separated only by a light, inflammable partition. Any outbreak of fire in such a shop necessarily makes this passage impassable and the house becomes a mere death-trap, for not even the ordinary accoutrements of the fire brigade, such as a fire escape, can be brought into use under circumstances of this description.

For new legislation it is imperative that precautionary measures should be insisted upon for the class of building involved in the Hackney fire. The entrance and exit of the house should be constructed of fire-resisting materials, and there should be no connexion whatever between the house and the shop, the upper floors of the house also being separated from the shop by a fire-resisting floor of substantial construction. Such safeguards are already law as far as new stables are concerned, but we believe the sanitary question was put forward for that class of structure rather than the risk from fire. There are also several other classes of building where partial separation is already compulsory. New legislation, however, should not only make these safeguards compulsory for a new building, but retrospective, and landlords should be compelled to protect their property in such a manner that the risk of loss of life is limited. The requirement of such protection being afforded in old buildings would not be at all unreasonable if ample notice were given and, say, a period of three or five years were allowed in which the additional protection would have to be provided.

In respect to the great Barbican fire, we will, in the first place, point to our previous articles in connexion with the Cripplegate fire of November, 1897, and at the same time mention that much that we suggested at the time has been taken up, not only by the British Fire Prevention Committee, whose business it is to put forward new ideas in respect to fire protection, but also by the London County Council and by some of the more progressive fire insurance offices. As a matter of fact, the Barbican fire of last month does not give us really any new features from an architect's point of view. There are no features to which we can point that were not already mentioned in connexion with the Cripplegate catastrophe. The character of the property was identical, the effect of the fire was identical, and perhaps the only point at which we would express our surprise is that the fire—no matter how exposed some of the windows of the buildings on the north side of Barbican may have been—was allowed to spread from the south side to the north side over a thoroughfare 47 ft. wide. Whether the wind had anything to do with this, whether the fire brigade was at fault (as many of the underwriters think), or whether a combination of unfortunate circumstances increased the severity of this fire, we know not, and it would perhaps be premature to say anything pending the fire inquest which has been ordered at a recent meeting of the Common Council.

One thing, however, was more evident at the Barbican fire than at the Cripplegate fire, and that was, in the first place, the large proportion of unprotected vertical glazing alluded to in a letter in a recent number, and the fact that, although of recent date, none of the buildings had their iron columns or girders protected by plaster or concrete.

One can hardly speak too strongly as to the neglect shown in the erection of factories and warehouses respecting the protection of ironwork. The fact that no protection happened to be specified in the Act of 1894 seems to be a serious omission. Even the more enlightened of architects have failed to apply this form of protection in modern buildings of the warehouse class. The exact form of the best protective coverings cannot, of course, be stated without due consideration and careful investigation, and we have scarcely sufficient data to go upon. We understand, however, that such data will shortly be forthcoming, as the committee of experts formed in Germany by representatives of the various engineering societies and others will be taking this matter up, and, by arrangement with the British Fire Prevention Committee, will particularly deal with such parts of the subject as have not yet been dealt with in this country. Similarly, a fire prevention committee in course of formation in the United States will be taking up this same question in consultation with the London body, with particular regard to protective coverings that shall be free from the effect of corrosion and rust—a most important point which has been too much neglected. Such investigations, whether conducted in London, Berlin, or Boston, will, of course, take considerable time, but it is to be hoped that the experience gained and the experiments made will be available by the time the Building Act is again under revision.

Regarding the large vertical surfaces of unprotected glazing, we think that the simplest and most effective manner of protection would be that adopted on the Continent of providing windows on the fronts of warehouse property with the ordinary rolled shop-shutter made in hard wood or metal, and it might be a subject for the various shutter-makers to put forward for investigation, to see which of the many forms of shutters on the market are most adaptable for this purpose. We have, of course, seen tests with asbestos blinds, water-screens, water-spray curtains, and the like, and in Scotland various forms of sliding shutters are frequently used, whilst a considerable amount of protection can be obtained from different forms of fire-resisting glazing for every-day practical purposes. The rolled shutter, however, will be found to be more practical for everyday use. There is no reason why the shutter should not have some ventilation-holes, as it is only the protection against drifting sparks that has to be primarily considered. The great fear of the fire brigade is that an incipient fire would be hidden too long in a house closed up entirely by shutters. This would be obviated if some loopholes were allowed in the shutter surfaces. Of course, the use of the shutter is to a great extent dependent on the owner's careful management, as it is liable to get out of order if not regularly used and properly attended to. We believe the insurance companies have already given a slight rebate for the equipment of shutters, and that they propose making the rebate a larger one for shutters facing areas as distinct from thoroughfares. There is no reason why there should not be the double

protection of fire-resisting glazing as well as the provision of a shutter, inasmuch as many of the forms of fire-resisting glazing are particularly adapted to areas, seeing that, besides giving a fire-resisting surface of some durability, this glazing, if used in prism section (either in sheets or in small squares) is useful in affording additional reflected light.

Touching on the question of roofs, there is no doubt that the ordinary slate roofing, found in the warehouse districts, is a source of considerable danger. Slates crack immediately when affected by heat from a neighbouring fire; the slates fall off, and the boarding below, having all the qualities of tinder, soon catches a spark and is well alight. We think that this roofing question calls for most careful attention; and although we do not favour the flat roof of solid concrete or the like, we hold that the roofing materials should be improved upon, that iron trusses should be made compulsory in the warehouse class of building, and that match-boarding should be prohibited, whilst some of the many fire-resisting materials could be applied for roofing purposes with better results than the usual Bangor slate.

It is not our intention to enter into detail. The Barbican fire, as we have said, really only forms a repetition of the Cripplegate fire. There is one point, however, for those who may be preparing the draft of the new Building Act to heed, and that is, the Building Act of the future should distinguish between different classes of buildings and should distinguish between the various zones and districts of the Metropolis. At the present moment we only have to distinguish the "warehouse class." We shall in future require several distinct classes, separating the ordinary suburban shop from the West End shop, and the latter from the warehouse and office block—again, the warehouse and office block from the factory—and the factory from the great combined stores which at times combine the requirements of shops, warehouses, and manufactories all under one roof, and also hold at times large crowds of employees and customers. As to zones, it seems illogical to treat on identical lines shop property in Hampstead or Camberwell with shop property in the West End, or shop property in Cheapside and Aldersgate-street. We believe the zone system has been applied with considerable success in some of the American cities and also in Vienna, and it might be well to study the experience gained in other localities.

In closing these few remarks on the Barbican fire, we regret to say that as long as present circumstances exist, and as long as we have no retrospective legislation regarding our buildings of a dangerous class, and again, as long as our fire-brigade establishment remains undermanned and retains its organisation of thirty years ago, we must expect from time to time repetitions of the Cripplegate and Barbican fires. We must, in fact, congratulate ourselves that these fires have, so far, always occurred singly and in propitious weather. Given two fires of this description, starting approximately at the same time on a really stormy night, the fire loss of London would indeed be something terrible.

ST. PHILIP AND ST. JAMES, MILTON.—The new north aisle for this church, which has been in contemplation for several years, is now about to be built, through the generosity of Lord Norton. The architects are Messrs. Jones & Hilton, Burslem; and the builder is Mr. J. Moss, of Milton.

NOTES.

The Education Bill.

THE second reading of the Education Bill will have taken place before the publication of this number, but not in sufficient time for us to chronicle it here. That the second reading would be carried has long been foreseen by those even who are most opposed to the Bill. Nothing that has been said in the debate has, however, altered the view of disinterested educational reformers that it would have been far better to have dealt, in the present session only with secondary and technical education. It is the necessity of providing money for primary education which will largely starve higher education, nor have we any certainty that in the rural districts the policy of many County Councils will not be to spend as little on education as possible. Several speakers in the debate this week have not thrown any new light on the question, and as with so many measures of the present day, the most important part of its Parliamentary life will be the committee stage, in which we may expect many important amendments to be discussed.

London Water Bill.

WHEN we discussed the second reading of the London Water Bill it was pointed out that this part of the proceedings of Parliament was of little importance compared to subsequent stages. Last week we noted some of the decisions of the Committee; this week a very important amendment has to be considered, that of the elimination of the representatives of the London Municipal Councils, so as to reduce the size of the Water Board. From the time the Bill was introduced, it has been quite evident that from a business point of view there were far too many members on the Board, and the Committee has certainly acted in the public interest in deciding to reduce it; and we hope that they will not next week change their decision. Nothing can be more absurd than to say that the Committee had not power to take this step. When the House of Commons passed the second reading it did no more than affirm the principle that the water companies should be superseded by a public body. All the details as to the transfer of the undertakings and the composition of the new Water Board were left for criticism and revision, if necessary. During the several years' discussion of this question we have reiterated the opinion that the London County Council was the proper body to control the water supply of London, and we feel little doubt that even if a Water Board is constituted by Parliament its powers will ultimately, and perhaps at no distant period, be transferred to the London County Council.

High-Pressure Heating Apparatus.

WE have before us the Board of Trade Reports of the preliminary inquiries in respect of two boiler explosions. The first explosion occurred on November 17 last at the Long-lane Board School, East Finchley, and the second on December 17 at the Primitive Methodist Sunday School, Barnoldswick, Yorkshire. In each case the boiler consisted of coils of pipes, and was in connexion with heating pipes on the high-pressure system. The Finchley apparatus was about eighteen years old, and had been regularly inspected by the makers until the year 1896. The explosion probably resulted from the presence of air and the formation of ice in the circulation-pipes, the flow of water being thereby obstructed, and one of the boiler-tubes being consequently overheated and so weakened that it was unable to withstand the steam-pressure to which it was subjected. A safety valve was fitted at the highest point of each set of circulation-pipes, and was therefore in such a position as to be quite useless under the conditions which led to the explosion. The Yorkshire apparatus was about twenty-one years old, but the boiler was repaired thirteen years ago, a new tube being inserted in place of one that had given way owing to the pipes having been choked with ice. In the recent explosion one of the boiler-tubes yielded on account of imperfect welding, although at the time the apparatus appears to have been working under normal conditions. It is, of course, possible that the tube had been previously strained during frosty weather. A new apparatus of similar character was, at the date of the Report, being laid down, each section being fitted with a safety valve. The engineer surveyor-in-chief suggested that the valves should be placed "where they will always be operative, and where an escape of heated water will not cause injury to any person." These explosions are fresh proofs of the dangers attending high-pressure heating apparatus.

Buildings in Advance of Building Line.

THE case of the Blackpool Corporation *v.* Johnson, reported in the "Law Reports" for this month, is one of very considerable interest to the owners of property. A certain shop, house, and cellar had been erected in the borough, which, without the written consent of the Urban Authority, projected further into the street than the main walls of the adjoining buildings. Johnson, the respondent in this case, had purchased the building from the owner and builder, who had become bankrupt. The Urban Authority then proceeded against the respondent under Section 3 of the Public Health (Building in Streets) Act, 1888, contending that under that Section he was committing a continuing offence by allowing the building so to continue, for which he was liable to the penalty of 40s. a day. The Court unanimously held that the magistrates had been right in refusing to convict the respondent in such circumstances, as by the terms of the section the only person liable to the penalties for continuing the offence was the person who had committed it, *i.e.*, who had erected or brought forward the house beyond the building line. Conversely under Section 158 of the Public Health Act, 1875, which makes the existence of works which infringe by-laws of Urban Authorities and which are erected without the approval of the Urban Authority a continuing offence, it has been held in "Welsh *v.* West Ham Corporation" that the person liable in respect of the continuing offence must be the person actually continuing it. In this case the builder, who was not the owner and who was not in possession of the building, was held not guilty of the continuing offence. It must be borne in mind, however, that these decisions are directed to the penal provisions only, and do not touch upon the powers of Urban Authorities to pull down buildings erected contrary to their by-laws.

The East Boston Tunnel.

FROM a recent report it appears that this work, which is to connect Boston (U.S.A.) proper with East Boston, is now progressing at the rate of about 35 ft. per week, each foot run representing some 22 yds. of excavation, and 8 yds. of concreting. At the present time the material penetrated consists of dense blue clay containing very little gas or water, and operations are conducted by the aid of a shield working with compressed air at a pressure of 22 lbs. per square inch. The force required to advance the shield averages twenty-two tons, and it is frequently possible to effect three movements within the period of twenty-four hours. Concrete used for the tunnel is mixed in 16 ft. batches in a Carlin machine worked by an independent engine at the foot of the shaft, and each batch is received in a small car and run immediately to the heading. Concrete for the invert is carried in wooden cars having pivotted sides arranged so as to distribute the material as it is raked out, and material for the arch is taken in smaller steel cars running along an upper platform, one end of each car, instead of the sides, being hinged. Steel anchors are built into the arch concrete as the work proceeds, and the ends of the anchor plates, projecting into the tunnel, will form connexions for the support of the overhead ceiling of the ventilating chamber to be constructed after the tunnel is otherwise completed. Where concrete of spongy nature occurs in the lining, the practice is to fill up voids by the injection of thin grout through pipes inserted in the faulty material, and it is said that this expedient gives more satisfactory results than would be afforded by cutting out the defective parts.

The Turin Exhibition.

THE international exhibition of decorative art at Turin was to be opened to the public on the 10th, but at a visit paid to it last week it looked unlikely that it could be ready by then. Through the courtesy of Mr. Walter Crane, who is arranging the exhibits of the British section, we were allowed to walk round some of the buildings and to see the principal part of the British exhibits. The buildings show a good deal of originality, quite permissible in such temporary structures, and they look from the outside as though they are planned by one mind, while within the decoration is left to the taste of the country occupying the space. If the style without is fantastic, the style within of some sections, notably the Glasgow school and the German, is rich in all that is weird and ugly. Very few of the actual exhibits were to be seen, but we hope that the best work only of each country will be shown, and that the exhibition will be largely visited by artists and craftsmen as well as by the public. In jewellery and in carving England is much behind in the crafts, France and Italy respectively being ahead of us. In schemes for monumental buildings and public improvements we can learn much from our neighbours, but we have always held that decorative art applied to the comfort and beauty of town and country houses has been carried further and more successfully in England than in other countries. At Turin we are admirably represented by a selection of work made by the Arts and Crafts Society, and by a room devoted to the works of Mr. Walter Crane. Several frames of architectural photographs illustrate the progress of English architecture from Pugin to the present day. The younger school of architects and decorators is worthily represented by examples of Professor Beresford Pite's work, a model of a house by Mr. Prior, and photographs of interiors by Mr. Weir Schultz and Mr. Lorimer. One or two excellent pieces of furniture are sent by Mr. Sidney Barnsley and Mr. Gimson. In reliefs Mr. Frampton, Mr. Anning Bell, and Mr. H. Wilson are well represented. The jewellery, as well as many other exhibits, had not then been arranged.

Changes in the Strand (West).

RAPID progress is being made in the demolition of the Lowther Arcade and of the houses that constituted the central feature of the south and principal front of the block which extends from Agar-street to Adelaide-street. The houses we indicate were marked by their advanced fronts with a façade of engaged columns carried up the first and second floors and supporting a cornice and balustrade. The entire block—illustrated in the *Mirror*, of October 22, 1831—forms a portion of the new buildings that were erected for the improvement of that quarter of the Strand in pursuance of the Act 7, George IV., c. 77, Decimus Burton being architect of most of the new buildings (including Charing Cross Hospital), and W. C. Mylne acting as valuer on behalf of the Government. At that time, 1829-31, William, Lord Lowther, was Chief Commissioner of Woods and Forests; the Arcade, named after him, was built in 1830-2 for Jacob Perkins, the engineer, from designs by Witherden Young, who was architect also of the adjoining Adelaide Gallery, latterly absorbed in a well-known restaurant. The Arcade, having originally twenty-five shops, together with six in Adelaide-street and West Strand, covered a total area of about 16,000 ft. superficial, held under one lease from the Crown, of which twenty-seven and a half years are still unexpired, at a ground-rent of 1,270*l.* per annum. The interest in the lease was offered for sale at auction four years ago by the trustees under the will of the late Mr. William Bird, and was withdrawn from the projected sale at 30,000*l.* We gather that the property has recently been acquired by the proprietors of Coutts's Bank. The Arcade, measuring 245 ft., with a passage 20 ft. wide, and being 35 ft. high, was lighted by a row of small domes carried by pendentives, and presenting a very pleasing architectural effect. On the south side of the main street has been begun the pulling down of Beaufort-buildings and of two or three of the houses in the Strand at the two corners of Beaufort-buildings, preparatory to a clearance of the site, and a raising of the level, for an enlargement of the Savoy Hotel and other new works, which we briefly described in our "Note" of February 8 last, p. 128 *ante*, for the widening of the Strand between Terry's Theatre and the Hotel Cecil.

The Guards' Chapel, Wellington Barracks.

IT is stated that a committee of former and present officers of the four regiments of Foot Guards have approved of the general designs prepared by Mr. Clayton—with whom, we understand, Mr. Pearson will act as architect—for a memorial which shall commemorate the 700 guardsmen, including twenty-one officers, who have fallen in action or died of wounds or disease in the course of the present South African war. The committee intend to complete the decoration of the apse of the chapel with mosaic embellishment in front of the mosaic memorial, to the late General Philip Smith, in the half-dome, and to replace the white stone columns of the arch of the apse with columns in alabaster. The apse forms the only sign, as visible from without, of what is practically the beautiful basilica which G. E. Street constructed within the pseudo-Greek shell of the chapel.

The Grafton Gallery.

AT the Grafton Gallery is a double exhibition of two very different classes of portraits; highly finished oil-paintings by one of the most accomplished of French artists, M. Benjamin-Constant, and pencil heads by an English amateur, the Marchioness of Granby. These latter, which are numerous, are very simple and unpretending pencil sketches, on a small scale, mostly of heads only. The portraits of ladies, with some few exceptions, are rather deficient in marked character; it may be said that Lady Granby, unlike most lady artists, succeeds better with the portraits of men than of women. The likenesses of a good many public men—Lord Salisbury, Mr. Balfour, the late Mr. Rhodes, and others, are good and energetic, and show a great facility in catching a likeness. The portraits by M. Benjamin-Constant are twenty-five in number, and include some of his most sumptuous performances: several of them we remember at the Salon from time to time. A collective view of this painter's portraits suggests something wanting in them, in spite of their effectiveness; partly it is, we think, a want of sympathetic feeling in the artist for his sitter; partly a hard and cold manner in flesh painting. Some of the most sumptuous portraits of ladies impress one as if the effect of the costume were the principal object; the countenance is the least important thing in them; and there is a certain hard glitter of effect which arrests the attention, no doubt, but which is not one of the highest qualities in portrait painting. Some of the portraits of men—that of M. Schneider, for instance, are characteristic and energetic enough; and when the artist can lay aside his desire for glitter and concentrate his attention on the countenance we find him at his best, as in the very fine portrait of an old lady, Mme. Laugier, in which the head is painted with the greatest power, and the simple and dark-coloured dress leaves it free to assert itself without the distraction of minor details. This is perhaps the best thing in the gallery.

"Mr. Punch in Bond-street."

THIS is the title given to a most interesting collection, at the Woodbury Gallery in Bond-street, of original drawings by various artists on the staff of *Punch*. Without finding any fault with the manner in which the *Punch* engravings are produced, one cannot but feel that we get a much more just appreciation of the talent and force of many of these drawings from seeing them in their original form and on a larger scale than the engraved illustrations. Among the best in the collection are those of Mr. Bernard

Partridge, which show also that he can succeed in very different classes of subject. "The Curate," which is one of the few brush drawings in the room, is quite pathetic in feeling, as well as an admirable drawing; equally good is another in the same manner of execution, "A Window in Thrums," the portrait of the old dame who observed her neighbours' doings through that celebrated casement. In contrast to these are such admirable line drawings as the "Frontispiece to the *Punch* Almanack 1902," and "Paws Off," an admirable imitation of the characteristics of Chinese drawing. Besides these, the honours are perhaps divided between Mr. Phil May, who holds the top of the room, Mr. Reed, and Mr. Sambourne; among the drawings of the latter artist may be specially mentioned the "Return of Queen Victoria from Ireland," with the beautiful figure of Hibernia wafting her farewell, and the spirited drawing "History Repeats Itself," where Lord Kitchener is interviewed by the shade of Dryden. Mr. Harrison's archaic study of the scene where the "Roads were always up in Ancient Egypt" is a masterpiece of humour and burlesque antique; Mr. Ralph Cleaver, in the drawing entitled "These Parents," may claim to be the successor of Mr. du Maurier in the neat delineation of the Society young woman; and Mr. Stampa shows charmingly his sympathy with the boy, in "Youthful Gallantry" and "A Lesson in Geography." Mr. Partridge, by the way, contributes what, as far as we noticed, is the one architectural drawing in the room—a sketch of "Les Halles" at Malines.

Pastels by M. Simon Bussy.

AT the Dutch Gallery, 14, Brook-street, is a small collection of pastels, chiefly landscape studies, by M. Simon Bussy, which deserve attention, though we think their claims are somewhat exaggerated in the preface to the catalogue. The artist handles the medium of pastel with a thorough acquaintance with its special character and its limitations; he does not attempt to do too much with it, but uses it mainly for studies of effect. In this respect his study of the lakes of the Engadine in twilight, the Bernese Alps at sunset, and some others of the same class, are fine and effective indications of the spirit of landscape. The bright sketch of Villefranche-sur-Mer is a very successful study of another type of effect. There is not, however, much of daylight or sunshine in the sketches, the general effect of which is rather depressing; but they are at all events not commonplace work.

Abergavenny New Workhouse.

A CORRESPONDENT sends us an advertisement from a local paper, in which the Abergavenny Union request architects to state the terms on which they will furnish plans, specifications, and quantities for a new workhouse, and supervise the building. It is really disgraceful that such an advertisement should be addressed to the architectural profession. Abergavenny is not such a small or out-of-the-way place that the Guardians might not be expected to know the world better than that. If they wanted the services of a solicitor, would they venture to insert an advertisement to the legal profession asking them to state their terms for acting? And if not, why do they insult the architectural profession in this way? They may be certain of one thing—they will not obtain the services of any respectable architect in that manner.

MAGAZINES AND REVIEWS.

THE two first articles in the *Art Journal* both refer to the Wallace collection, the first being on the collection of armour at Hertford House, by Mr. G. F. Laking; the second, No. 5 of Mr. Claude Phillips's articles on the pictures in the Wallace collection. Mr. Phillips is still dealing with the French pictures; those of Marilhat (whom he compares with Decamps), Couture, Horace Vernet, Meissonier, Corot, and Rousseau. Though we quite agree that it is possible to overrate Meissonier—that this is in fact no uncommon error, we think Mr. Phillips is somewhat harsh in his judgment of him. Though it is true that Meissonier had, as far as pictures go, no soul whatever—they are pieces of brilliant execution and nothing more — this execution was so wonderfully fine, and was the product of so much honest and unshrinking application and study, that it merits a rather less grudging acknowledgment than we find here given to it. Occasionally too, Meissonier did rise above mere execution. His small picture of Napoleon on horseback under the title "1813," is really a wonderful summary of the fateful side of Napoleon's career. The article is accompanied by full-plate illustrations of the two grand landscapes by Corot and Rousseau respectively—"Macbeth and the Witches" and "A Glade in the Forest of Fontainebleau," which are among the most precious treasures of the Wallace collection. Mr. Phillips notes the fact that no example of Millet found its way into this collection. One can hardly be surprised at that, however; neither Hertford House nor Bagatelle were quite the atmosphere for a Millet. We read with sympathy an illustrated article on that rarely gifted painter and charming man C. R. Leslie, written jointly by his son and by the secretary of the Royal Academy. Leslie was stronger even in technique than is quite recognised nowadays—witness his "Mother and Child," illustrated here, and seen not long since at one of the Burlington House loan collections; but beyond that he was a painter of the most remarkable and delicate faculty of inventive humour, and in this sense he was, as an illustrator of literature, an artist of quite exceptional insight. His "Katherine and Petruchio" is one of the best Shakespeare illustrations ever made; they are Shakespeare's own people brought to life on canvas.

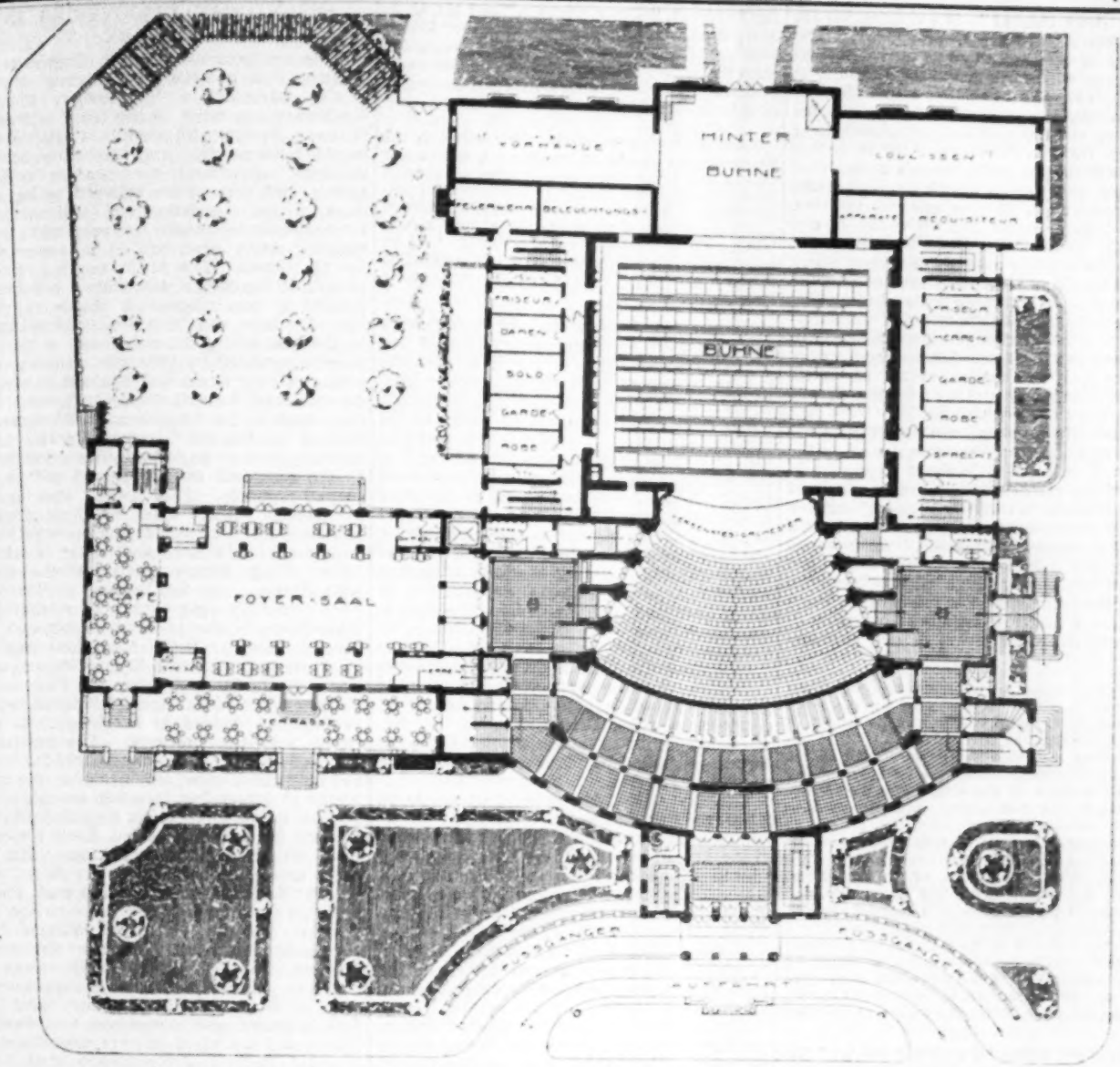
The *Magazine of Art* is chiefly devoted to the works of various rising artists who have exhibited original talents and evolved a line of art of their own. The most interesting of these to us is Mr. Lynn Jenkins, whose admirable symbolical metal and ivory frieze for the decoration of the hall in Lloyd's Registry buildings we noticed with appreciation when it was in the sculpture-room of the Royal Academy last year. The article is accompanied by an illustration of his very good design for a Victoria Monument for Liverpool; the treatment of the pedestal and its attendant figures is especially praiseworthy. The article is by Mr. Spielmann, the editor. Another illustrates the work of a very clever and original lady artist, Miss Gloag, and another is devoted to the works of the new painter of Dutch life, Mr. Jungmann. Mr. W. Roberts contributes an interesting paper on "Copies" of pictures, one of a series on "Curiosities of Art." We could furnished a story which is not included—that of Muller, the landscape-painter, mistaking for one of his own works a surreptitiously made copy of it. Muller thought he had found his own landscape at a house where he was visiting; but a friend who had been with him when he painted it, said suddenly "Muller, this cannot be *your* picture; do not you remember there was a sketch of a waterfall on the back of it"; a fact which the artist did remember. The canvass before them was clean on the back, and until this discovery, the artist had himself taken the copy for his own work. *Sic vos non vobis, &c.*

The *Architectural Record* (New York) for this quarter has a cover beautified with part of a colonnade shown in silhouette, and a decorative lawn, fence, and landscape beyond. The number is entirely devoted to the illustration of the works of one American architect, Mr. Ernest Flagg; a very successful architect, as we had long been aware, though we did not gather that, in the artistic sense, his works were quite worth a special number of a magazine. Mr. Flagg evidently has an immense practice, and there is a great deal of cleverness in the numerous designs illustrated here, but except in one case we should say that cleverness is more prevalent than refinement of design. The one exception is the façade of the Corcoran Gallery of Art at Washington; a very suitable treatment founded on Greek lines, and well carried out in detail. But we do not think the best of our English architects will have anything to learn from the general illustrations of Mr. Flagg's work, important as it is in a sense.

In the *Berliner Architekturwelt* the competition designs for the Berlin Exhibition continue to find place, and show one or two wild architectural dreams. Herr Hartmann shows a circular domed hall resting on a low order of Doric columns at the base, with a ribbed treatment of the dome and a series of colossal heads above the entablature of the colonnade; but the dome quite crushes the Order. A design, No. 74, without the architect's name, shows a treatment of a circular central hall which is more reasonable in its notions of architectural proportion. A house in the Bellevue-Strasse, by MM. Cremer and Wolfenstein, has an original but too "fidgetty" façade, and an effective hall interior. The designs for Bismarck monuments which continue to appear — there is one this month by Herr Bruno Schmitz — seem inspired by a desire to represent a kind of dream of the world before the Flood, of the kind of monuments men might have designed in the infancy of the human race—cyclopean, unhewn, rock-built rather than sculptured; they remind one of some of Blake's sketches of primeval architectural conceptions in his poems. There is no doubt something grand about this kind of thing, but it strikes one as rather a conscious acting of primeval grandeur, which is only a fashion of mind of the moment, and will pass away again, leaving another generation rather critical on the aspect of these apparently antediluvian monuments. The Ullstein house in the Kochstrasse, by MM. Hart & Lesser, is a sober Classic composition with a certain individuality of treatment; the main block, with a cornice and an order dividing it into four bays, is symmetrical, but the actual division of the block into two occupations is indicated by a more decorative treatment of detail on one half than on the other. The details, of which larger illustrations are given, are however, rather coarse in character, and the small full-length figures in the caps of the pilasters flanking the principal entrance strike one as being completely out of scale with all the rest of the ornament.

The *Architektonische Rundschau* gives the view, plan, and section of the Prince Regent Theatre at Munich, a finely-planned house in which the curve of the auditorium is expressed (as we think it always should be) in the exterior architectural treatment. The plan of the auditorium and of the concentric foyers or corridors spreads outwards like a fan from the stage line. We give a reduction of the plan, from which it will be seen that the approaches, exits, and surroundings are planned with a liberality which we never meet with in an English city. The exterior is in a classic treatment of severe and sufficiently dignified character. MM. Heilmann & Littmann, of Munich, are the architects. There is nothing specially to be remarked in the other illustrations, except that in the interior from a villa in Grunewald the gallery shows a suggestion for a new treatment of a balustrade — ingenious, though perhaps a little too pretentious.

The *Art-Workers' Quarterly* contains much useful practical description of processes in industrial art, and illustrations of various classes of work which are all in a good style. One of the most interesting and useful articles is that on "The Construction of an Iron Gate," by Mr. Harold Smith, with sketches of the attachments of the various parts. Other articles are on "Hand-weaving as a Craft," by Mr. Joseph King, and "Stencilling" by Mr. George R. Rigby. He refers to and explains the *modus operandi* of the Japanese in making their wonderfully elaborate thin paper stencils, and strengthening them where necessary afterwards. Three pages of very fine specimens of Italian lettering of the fifteenth and sixteenth centuries are among the other attractions of an excellent number.



Plan of the Prince Regent Theatre, Munich. (Reduced from the "Architektonische Rundschau."

In *Feilden's Magazine* an article by Mr. Twelvetrees on "The Manufacture of Portland Cement" contains a detailed description of the various processes followed in the production of cement, and the precautions that must be taken to secure uniform results. We quite agree with the statement that calcination to the proper degree is a matter most difficult of control. It is, at the same time, one of the most important to the user, for underburning means weak cement, and overburning means inert material. An account is also given of the tests commonly made in cement works. These are usually confined to the examination of neat cement, a practice which, it is correctly remarked, is not entirely free from objections, especially when tensile tests are concerned. The most interesting part of the article is that descriptive of the new "rotary" plant now in course of erection at the Wickham Works, Rochester. Rotary kilns are in almost universal use in the United States, and although similar plant has previously been adopted in this country, it has not hitherto proved to be an entire success. The improved apparatus described in the present article is said to have been practically tested for a period of two years, and it certainly appears to possess advantages not enjoyed by the ordinary form of rotary plant.

In the *Engineering Magazine* we notice an instructive article on "The False Witness of the Test Bar," by Mr. Robert Buchanan, a foundry manager of considerable experience. The essential questions considered by the author are whether cast-iron test bars give a true indication of the quality of the castings they represent; and if not, to what extent do they mislead. Two most important factors influencing the character of iron are the casting temperature and the rate of cooling. Some remarkable examples are given of the differences in strength and chemical constitution obtained by casting bars separately, and by running them from the casting itself. In one case the bars are cast "hot" and cool quickly, and in the other they are cast "dull" and cool at a slower rate along with the casting. The result, as the author points out, is that bars cast separately are stronger than those cast on, and that the nearer the test bar is to the main casting, the weaker it must be. The writer fears that the ambition of founders in the past has been less the making of strong castings than the production of satisfactory test bars, and he suggests that test bars should invariably be run from the casting so that a truer indication of quality may be obtained. This is very candid advice, and its universal adoption is certainly to be desired. The article on "The Factory Office" is a very practical one, suggesting the best methods of administering the work of a factory.

In the *Nineteenth Century* Mr. A. Higgins writes a thoughtful article on "Dante and the Fine Arts," which will be interesting to students of the "Divina Commedia." The special object of the article is to rebut a theory of Mr. Berenson that we should find in the illuminators and painters of the fourteenth century the key to much of Dante's imagery; that he wrote from the suggestions and conceptions of contemporary art. This seems, even at first thought, a most unlikely origin for conceptions so entirely transcending the range and powers of painting of that period, and Mr. Higgins, in pursuing the subject in detail, shows we think conclusively that there are conceptions in Dante for which no parallel whatever is to be found in early Italian art.

In the *Monthly Review* Mr. Cook's phantasy, as we should call it, in regard to the staircase at Blois having been built by Leonardo as a suggestion from the spiral of a shell is concluded, and may seem all very interesting and subtle to the general reader, but is no more conclusive than the reasoning of the people who used to think that the Gothic vault arose from the imitation of the boughs of trees. Architectural problems of this kind *solvuntur ambulando*; once make use of a spiral staircase (no very recondite idea in itself), and the further development of its architectural structure and decorative treatment is only, like the mediæval vault, a series of steps in practical experiment in construction and design, to which Nature in reality offers no analogy; nor do the author's specimens of shells afford any hint for the detail of the Blois staircase, though he labours hard to make the reader think so. Articles of this kind do nothing to advance the public comprehension of architectural design. Mr. Roger E. Fry's article on "Art and Religion" contains a high enthusiasm and some fine thoughts. His special point is the radical difference between painting for the church, as artists did in bygone days, and painting for exhibitions, as they do now. There is a great gulf, certainly, between the two, as modern painting is generally practised, but after all what is wanted is not so much the Church as a high and spiritual aim in art, which may exist quite apart from the Church, as Mr. Watts's pictures, among others, do testify. Nor can we quite admit Mr. Fry's argument that the treatment of only a few well-known and popularised subjects, such as the Church legends, led to people thinking more of the art and less of the subject; probably the general crowd who saw religious paintings in the good old days thought of them simply as telling a story, just as the general crowd of Academy visitors do now. And if they had thought more of the art and less of the subject, that was exactly what the Church did not want! Browning's "Filippo Lippo" is the best comment on that argument.

In the *Century* Mr. W. H. Pickering treats the question which Mr. Maunder recently treated in the *Pall Mall Magazine*—"Is the

Moon a Dead Planet?" His conclusions are rather different from Mr. Maunder's. The drawings of certain craters as seen at various times are very interesting, and seem to support the writer's view that there are actual changes going on upon the moon's surface, appearances which are not the result of mere changes of lighting. He even shows reason to think that the effect of sunrise on the moon's surface (her day being of course a month long) produces changes which can be observed and recorded. In the same number Mr. Sylvester Baxter writes an article "For Civic Improvement: what to do and how to do it," a subject which seems to be gaining increased attention in the United States. This article deals with the subject in a large spirit, suggesting the consideration of the whole landscape around a town. In some cases the recommendations seem rather to verge upon the dangerous art (so-called) of artificial landscape-making; but the view of a promontory from which all the trees had been gradually removed, contrasted with the possible appearance of the same site when the trees were there, is a pointed argument in favour of the preservation of trees. Some of the illustrations fail of their point because, while we are shown, for instance, what is said to be "An Improved Lakeside," we have no illustration of it before it was "improved," and therefore can hardly judge of the beneficial effect of the operation. The following is worth quoting as a practical argument in favour of the commercial value (even) of city improvements:—

"The great value of a recreatively developed water-front to a city is illustrated by the work undertaken by Cambridge, which, in its scheme of park improvement, has devoted its chief attention to reclaiming and beautifying the banks of the Charles River throughout almost its entire course along the borders of the city. The community thus gains, at the cost of the work upon a comparatively narrow strip of land, the benefit of many hundreds of acres of free water-space for public enjoyment. This river bank, under public ownership, takes the shape of a magnificent esplanade, a riverside drive and promenade, and two waterside playgrounds with bathing beaches. The profitable character of such an investment for a municipality is shown in the fact that the increased taxes upon merely the first piece of improved property abutting upon the esplanade were more than enough to pay the whole interest and sinking fund charges for the entire park work on the river front."

In *Scribner*, under "The Field of Art," Mr. W. H. Low contributes an interesting article on the decorative painting of Galland, Baudry, and Puvis de Chavannes. While recognising the latter as the greatest decorative painter of his time, he does justice to Baudry's paintings at the Opera House, which have been rather unduly depreciated in recent days. Galland was a lesser painter but with an admirable decorative sense, and it was he who was called upon to design the border which was to separate and (if possible) harmonise the works of the different artists employed at the Panthéon, a task in which Puvis de Chavannes had failed.

Harper contains an article on "Amateur Art in Early New England," by Miss (or Mrs.) Grace Brownell Peck, which gives us a glimpse into a curious and little-known chapter in artistic history. The *Mayflower* brought over the goods and chattels of about one hundred English settlers, but nowhere is there any mention of pictures. "This omission from her cargo was due . . . . largely no doubt, to the disapproval with which our pious forefathers viewed all works of art, especially those religious masterpieces in which the great artists of the old world had excelled." But when life in the new world had a little developed, and Boston had become a thriving little city, the innate desire for pictorial representation began to show itself in the humble beginnings of a home-made art. Very curious, almost pathetic in a sense, are the *naïve* efforts, of which some illustrations are given here; pictorial paper-cutting ("papyrotamia"), painted engravings, clock-case decorations, &c. The account of them is written in a pleasant vein, half of sympathy, half of good-natured satire. Mr. Abbey's illustrations to the "Deserted Village" are continued, but we cannot say we get to like them any better as they go on.

To the *Gentleman's Magazine* Mr. W. Bradbrook contributes a historical and topographical article on "Watling Street in Bucks."

The *Pall Mall Magazine* has been fortunate enough to obtain reproductions of the figure studies for Sir E. Poynter's fine little picture in the Academy, "Storm-Nymphs," and Mr. G. A. Story contributes a vivacious article on "Recollections of the Royal Academy" as regarded from the artist's point of view. The following is characteristic, and what artists and designers of all classes will understand:—

"The first feeling on entering the galleries on the varnishing days is one of humility. A furtive and rapid glance round the rooms too often results in a kind of shock when you come upon your own performances. I remember one veteran member, seeing me looking at my work with gloomy aspect, told me not to be downhearted about it. 'We all feel like that,' he said, 'and if it is any consolation to you I may tell you that I think my own pictures look beastly.'"

It is pleasant to find an old Academician speaking with love and enthusiasm of the works of some artists whom it is now the fashion to regard with indifference or contempt; on the other hand, one is struck by the rather cold terms in which he refers to the most beautiful of all Millais' pictures, which he calls "Nuns digging a grave," depriving it of the poetry of its accepted title, "The Vale of Rest." It is interesting to read of the elder Leslie being offered 1,000*l.* by Lord Egremont to paint a picture of Sancho and the Duchess, and agreeing to paint the picture (perhaps his best work), but declining to accept more than 500*l.* for it, as he "did not feel justified in taking so large a sum as 1,000*l.* for the work in question." Successful painters are hardly so shy about money in these days. Mr. Philpott contributes a short article on the alterations in Piccadilly—one of a series on the rebuilding of London; an article of a popular, not of an architectural character; and Mr. H. W. Brewer contributes historical notes on the Tower, illustrated by his own admirable and suggestive sketches.

The *Revue Générale* includes an article on "Le Projet de Loi Scolaire Anglais;" those interested in the subject of education may like to see how this new attempt at settling our educational system is regarded by a foreign critic. The author, M. Alfred Nerincx, seems to be of opinion that the County Councils ought, by law, to replace the School Boards and take up their work; and that the omission to make this compulsory will destroy all the good that might otherwise be expected from the proposed reform.

The quarterly issue of the *Church Builder* contains an account of the interesting church of Ashton, Devonshire, and of the repairs which have been carried out under the safe direction of Mr. Ponting. "So little has been done in the way of restoration," we are told, that "passing into the church is like passing into the fourteenth century"; an unfortunately rare experience in these days. Mr. J. T. Micklethwaite, in his tenth article on "Church Furniture," writes some remarks on stained glass which represent both artistic feeling and sound common-sense.

In the *Antiquary* Mr. Evelyn White contributes some supplementary notes on the interesting subject of Thatched Churches. Among the curious facts mentioned is the imposition, in more than one instance, of a fine of so many *tiles* (2,100 in one case) for laxity in the observance of the Sabbath, the nature of the fine being obviously an indirect attempt to promote the manufacture and use of tiles as against what was considered the dangerous employment of thatch for roofs. An article and illustration are devoted to an unpublished MS. map of the river Hull, recently added to the collection of the Hull Municipal Museum. It is dated 1668. Canon Raven contributes an article which aims at a new identification of the principal sites or towns in the British Section of Antonine's Itinerary.

The most important paper in *Knowledge* is one on "Clouds," by Commander Wilson Barker, with numerous illustrations from photographs of different types of cloud. The paper is written rather with a scientific than an artistic object, more especially with the view of forecasting the weather from the appearance and form of clouds.

BOULOGNE CEMENT.—Mr. Vice-Consul Farmer reporting on the trade of Boulogne-sur-Mer, records that the exportations of cement from that port in 1901 amounted to 23,047 tons, as compared with 15,204 tons in 1900, and he remarks that "the increased export of cement, of local manufacture, is due to the greater quantity taken by the United Kingdom—9,048 tons in 1901, against 743 tons in 1900."

ANTIQUARIAN DISCOVERIES IN SOUTHWARK.

IT is conjectured that the fragments of ornamental terra-cotta work recently dug up in the graveyard of St. George's Church, Southwark, are relics of the fabric of Suffolk House. Similar fragments of elaborately moulded terra-cotta, together with several crucibles, apparently for use in coining money, and what were believed to be portions of the foundations of that mansion, were discovered *in situ* ten years ago; those remains were described in a paper read by Mr. Earle Way at a meeting of the British Archæological Association, and briefly noticed in our columns of March 12, 1892. We may here state that Suffolk House stood on the west side of the main road, on the site latterly occupied by Pidgeons' distillery, near where is now Great Suffolk-street, at a short distance south from St. George's Church. It is delineated in the foreground of Wyngaerde's view of London and Greenwich, drawn in or about 1550, as an imposing structure with five or six octagonal turrets capped with ogee-shaped cupolas. The house, also known as Suffolk Place, was built by Charles Brandon, Duke of Suffolk, for his wife Mary, widow of Louis XII., and sister of Henry VIII. King Henry exchanged the house with Brandon for the Bishop of Norwich's "inn" near Charing Cross, and established a Mint there, in the re-named Southwark, or Duke's, Place. Queen Mary bestowed the Mint property in the King's Manor upon Nicholas Heath, Archbishop of York, in recompense for York Place, Whitehall, which Wolsey had yielded to her father. In 1557 Heath sold the property. The purchasers disposed of much of the materials of the house, and built many mean tenements on the estate (about 18 acres), but they left enough of the original house to serve as a residence for Sir Edward Bromefield, elected Lord Mayor in 1637, who lived there until 1650. His son John, created a baronet on March 20, 1661, settled "Suffolk, otherwise Southwark, Place" upon his daughter Joyce on her marriage with Thomas, son and heir of William Lant, of London, merchant—whence the neighbouring Lant-street. In 7th Anne an Act was passed for making improvements on the estate, which included Duke and Suffolk-streets, and comprised 600 dwelling houses sold at auction in 1811, after the death of Mr. J. Bullock, of Faulkborne Hall, Essex, M.P. for the shire, whose father had married Elizabeth Lant in 1772. Until our own day the Mint formed one of the most notorious quarters of the town; it ranks as one of the sanctuaries scheduled in the Act of 8 and 9 William III., for the relief of creditors; the debtors' privileges were declared to be abolished by the Act of 9 George I., c. 29 (1723), for the more effectual execution of justice in "Suffolk Place or the Mint." Some silver coins issued in 1551, from Henry VIII.'s Southwark Mint bear a mint-mark "Y" for John Yorke, under treasurer, whom in 1549—being then Sheriff of London—Edward VI. knighted at Suffolk Place. In 1743, Robert Lant, of Putney, leased to the vestry a piece of ground known as Hangman's Acre, which afterwards became the site of the Bridewell, in Great Suffolk-street, built from the designs of George Gwilt the elder.

A LONDON THEATRE *TEMP.* QUEEN ELIZABETH.

AN interesting collection of maps and views of London in the sixteenth and seventeenth centuries, and models of playhouses as in Shakespeare's time, were exhibited recently at the Hall of Clifford's Inn. The maps and drawings were lent by the Topographical Society of London for purposes of what was in effect the inaugural meeting of the Shakespeare Commemoration League. Of the models one is a half-section of the Fortune Theatre in Golden-lane; another model, lent by Mrs. Mond, is a valuable piece of work, representing the first Globe Theatre, which stood in the Liberty of the Clink on Bankside, Southwark. The model was executed, to a large scale, and in accordance with authentical *data*, under the superintendence of Mr. Poel, a leading member of the Elizabethan Stage Society, and is sufficiently big to contain a number of dolls, about 3 in. high, which represent the players and their audience.

The Globe was originally built in the winter

of 1598-9 by Peter Street, carpenter, and his twelve men, who removed to Bankside the materials of The Theatre which, being the first after its kind, had been built of wood, in 1576, for James Burbage over a portion of the site of Holywell Priory, in Shoreditch. Of the Globe the only extant drawing is that by Hondius, made in 1610, three years before its destruction by fire. Polygonal on plan, it consisted of a wooden "frame" raised upon a substructure of brick and roofed with thatch, which contained three galleries—the ground or "yard" being open to the sky. The part of the frame opposite the main entrance was carried up higher; it had a thatched gable carrying the flagstaff, and contained the actors' "tiring-house," a curtained recess in which were two doors for the actors' entrance on to the stage, a staircase, and a gallery or balcony for scenic uses. The stage, extending into the open area, had a roof, known as the "heaven" or "shadow," carried upon two columns. A portion of each of the upper two galleries was subdivided into private "rooms" or boxes; the players provided stools at a charge of 6d. each for their friends upon the stage; the "groundlings" paid 1d. for standing-room in the pit; the "rooms" cost 1s. apiece; and a charge of 2d. was made for "quiet standing" below the first gallery and for seats in the galleries above. The performances began at three o'clock in the afternoon and lasted about two hours. The new Globe as rebuilt in 1613-4, and the Bear Garden or Hope, both being octagonal on plan, together with the Swan, polygonal on plan, are delineated in the foreground of Visscher's large bird's-eye view of London, published in 1616. The Globe, finally demolished in 1644, stood, it seems, within what is now the north-western angle of the Anchor Brewery (covering the site of Thrale's business residence), that is, south of the new Park-street and east of Southwark Bridge-road. At that spot stood as late as 1799—see Horwood's survey—a Globe-court and a Globe-walk; a Globe-alley there is plotted in Wallis's map of 1808. Francis Langley, draper and aulnager, built the Swan, near Paris Gardens-stairs, in or about the year 1596.

We can gather a general idea of the structural features of the Globe from the numerous references thereto contained in a document preserved amongst the Alleyn muniments at Dulwich College. It is the contractor's portion of an indenture executed between Philip Henslowe and Edward Alleyn, of St. Saviour's parish, and Peter Street, citizen and carpenter, on January 8, 1599-1600, for erecting a new house and stage [the Fortune, already cited] upon "a plot near Goldinge-lane" for the sum of 440*l*. An extract from the indenture may be of inetrest to our readers—we modernise the spelling, a few words excepted:—

"The frame of the said house to be set square and to contain foursoore foot of lawful assize every way square without and fifty-five foot of like assize square every way within, with a good sure and strong foundation of piles, brick, lime and sand both without and within to be wrought one foot of assize at the least above the ground; and the said frame to contain three stories in height, the first or lower story to contain twelve foot of lawful assize in height, the second story eleven foot of lawful assize in height, and the third or upper story to contain nine foot of lawful assize in height, all which stories shall contain twelve foot and a half of lawful assize in breadth throughout, besides a jutty forwards in either of the said two upper stories of ten inches of lawful assize; with four convenient divisions for gentlemens rooms and other sufficient convenient divisions for two-penny rooms, ... and with such like stairs, conveyance, and divisions, without and within, as are made and contrived in and to the late erected playhouse on the Bank in the said parish of St. Saviours, called the Globe; with a stage and tiring house . . . . within the said frame; with a shadow or cover over the said stage; . . . . and which stage shall contain in length forty and three foot of lawful assize and in breadth to extend to the middle of the yard of the said house; . . . . and the said stage to be in all other proportions contrived and fashioned like unto the stage of the said playhouse called the Globe; with convenient windows and lights glazed to the said tiring house . . . . [further references to the Globe] . . . . saving only that all the principal and main posts of the said frame, and stage forward, shall be square and wrought palaster-wise with carved proporcions called satiers to be placed and set on the top of every of the same posts."

The indenture is executed by Street in a monogram of his initials and is endorsed "Peater Streat for the building of the Fortune." With it may be compared the contract by Gilbert Katherens, and John Browne, of St. Saviour's, bricklayer, 1613, to build the Hope for Henslowe, master of the bears, and Meade, a "sculler" or waterman, which twice stipulates that the Hope shall be made in all things and in such form and fashion as the Swan [in Paris Garden]. The contract is given in full by Malone; we extract the following particulars of it from Mr. T. Fairman Ordish's book, "Early London Theatres (in the Fields)":—

"Katherens covenants to replace the Bear Garden with a gamehouse for bull and bear baiting, and also available as a playhouse with a tire-house and a removable stage to stand upon trestles. Two staircases without and adjoining the playhouse. Heavens (our modern 'flies') to have no supports on the stage; leaden gutters for the same. Two boxes in the lowermost story; partitions between the 'rooms.' Principals and fore-front of oak; all binding-joists to be of oak. Inner principal posts of first story 12 ft. high, 10 in. square, of middle story 8 in. square, of upper story 7 in. square; other posts 8 in., 7 in., and 6 in. square, according to story. Bressumers in lowermost story 9 in. by 7 in., in middle story 8 in. by 6 in. Brick foundations to be at least 12 in. above ground. 'A louvre or storie over the said house.' Browne to lay brickwork for 80*l*.; Katherens to supply all the materials. A bull-house for six bulls and three horses."

In 1606 Peter Street had agreed with Henslowe and Alleyn, masters of the King's game of bears, bulls, and dogs, to reconstruct, for 65*l*., a part of the foreside of the Bear Garden, using good sound timber of oak.

The collection we describe comprised also an enlarged copy of the drawing of the interior of the Swan which Dr. Karl Gädertz discovered fourteen years ago at the Utrecht University Library in a Latin MS. album or "stammbuch" of Arend van Buchell. The drawing is lettered "Ex observationibus Londinensibus Johannis de Witt," and the album contains a brief account of the Rose, the Swan, two other theatres, and a bear-garden. It is supposed that De Witt visited London in 1596, and that the notes by Van Buchell are derived from a now lost MS. of his friend De Witt. The drawing delineates the interior of a circular playhouse with an attic story rising above the "tectum," the "porticus" (second floor), "sedilia" (first floor), and "orchestra" with "ingressus" (ground floor). Into the "planities sive arena" projects the "proscenium," resting upon large blocks so that it could be removed to leave the amphitheatre free for bull and bear baiting. The inner half of the "proscenium" is covered with a lean-to and apparently tiled roof extending from the base of the attic and supported by two massive columns rising from the stage. The lean-to roof shelters a raised gallery, "mimorum ædes," divided into partitions in which some of the actors and people of quality are seated to view a performance in which three players are engaged; in the lower part of the "ædes" are two doors which open on to the "proscenium" or stage. At an opened door of the attic stands a trumpeter calling the audience. The flag on the gable bears the device of a swan. The account says the house was built of flint stone ("constructum ex coacervato lapide pyrritide"), with wooden piers coloured in imitation of marble. De Witt manifestly over-estimates its capacity in writing "quippe quod tres mille homines in sedilibus admittat." Nevertheless we have in that faded pen-and-ink drawing a fairly trustworthy picture of a London playhouse as it appeared at or just about the time that Shakespeare was living, *teste* Malone, as actor and playwright near the Bear Garden in Southwark.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

ANNUAL GENERAL MEETING.

A SPECIAL general meeting of the Royal Institute of British Architects was held on Monday evening, Mr. John Slater, Vice-President, occupying the chair.

The Chairman moved: "That, subject to his Majesty's gracious sanction, the Royal Gold Medal for the promotion of architecture be presented this year to Mr. Thomas Edward Collcutt, for his work as an architect."

The motion was carried by acclamation, and the special meeting terminated.

The annual general meeting was then held, and the report of the Council for the official year 1901-1902 was agreed to. The Report stated that:—"Since the publication of the last annual report the Council have held nineteen meetings, of which the Council elected in June last have held fifteen. The losses by death have been as follows:—Fellows: E. W. Barnes, R. Isaac Bennett, James Brooks, J. McKean Brydon, Arthur Cates, W. G. Doolin, E. Gregg, W. J. Hopkins, C. J. Innocent, G. Judge, J. Littlewood, J. Mackland, E. H. Martineau, W. G. Penty, F. W. Porter, J. Stevens, W. Larner Sugden, H. R. Yeoville Thomason; Associates: W. Bassett-Smith, W. Chastel de Boinville, Goymour Cuthbert, T. Gordon, J. L. Hodgson, J. A. Russel Inglis, H. R. Lloyd, H. T. Porter; Hon. Fellows: The Marquis of Dufferin, Sir Richard Temple; Hon. Associates: Hugh Leonard, A. T. Osmond, E. W. Smith; Hon. Corr. Member: Victor Schroeter. While recording the above, the Council again express their deep regret at the loss of their old and valued colleagues, James Brooks, Arthur Cates, and J. M. Brydon. To Arthur Cates the Institute owes the present development of the Examination scheme. James Brooks was always a wise counsellor and loyal friend. J. M. Brydon, taken away in the midst of his work for the Institute as Vice-President, and in the early tide of his fame as an architect, before he could see one stone of his life's principal work placed upon another, will always be a memorable and pathetic figure. . .

The following tabular statement shows the present subscribing membership of the Institute, compared with that at the corresponding period last year:—

Year.	Fellows.	Associates.	Hon. Associates.	Total.
1901	621	1,008	46	1,695
1902	617	1,071	44	1,732

During the official year, since the last annual general meeting, twenty-five Fellows have been elected, and seventy Associates. Three Hon. Corr. Members have been elected: Sainte-Marie Perrin (Lyons), Enrique Mariá Repulles y Vargas (Madrid), M. Alberto de Palacio (Madrid).

The usual Progressive Examinations were held in June and November, 1901, and, as last year, the Council have to report a steady increase in the number of candidates for each of the examinations. The Preliminary was held in London, Birmingham, Bristol, Cardiff, Dublin, Exeter, Leeds, Manchester, Newcastle, York; the Intermediate in London, Bristol, Leeds, Manchester, Newcastle, York; and the Special examination for colonial candidates was held in Montreal. The very cordial thanks of the Council are due to the hon. secretaries and examination committees of the various Allied Societies and of the Institutes of Quebec and Ontario for their ready and valuable assistance. The Final and Special examinations were held in London. . . . The total number of candidates examined during the year was 674, as against 603 in 1900. The number of Probationers of the Institute now stands at 1,699, and of Students at 402.

Owing to the death of the donor, there were no Arthur Cates prizes available for award as a result of the examinations last year. But now the Council, having invested the sum of 1,500*l*. bequeathed by Mr. Cates to the Institute for the purpose of endowing a prize to bear his name, have instituted such a prize under the general conditions regulating the prizes and studentships, and have thought they were best carrying out Mr. Cates's wishes by drawing up the conditions as nearly as possible on the lines of those laid down by Mr. Cates for the prizes he awarded during his lifetime. The Ashpitel Prize was awarded to Mr. Charles Thomas Adshead, who passed the Final examination in November. A special prize of books to the value of ten guineas was awarded to Mr. F. Dare Clapham, a special candidate at the June examination, who made the highest number of marks recorded in the Final examinations. The "special" examination will be held this year in Montreal and Melbourne. . . .

One of the most interesting events of the year was the Institute visit to Glasgow in October. According to recent custom the annual dinner of the Institute is held at a non-metropolitan centre every third year; it was held in 1895 in Manchester, in 1898 in Birmingham, so that in 1901 came the turn of a non-metropolitan gathering. The Glasgow Institute, taking advantage of the fact that the International Exhibition would be a great attraction to their city, invited the Council to hold the annual dinner in Glasgow last year. The dinner took place at the Windsor Hotel, on Thursday, October 4, the attendance being larger than at any previous Institute dinner, with the exception of that held in 1900 in

London, when H.R.H. the Duke of Cambridge was present. On Friday, the 5th, the Institute was publicly entertained by the Glasgow Institute at lunch, the Glasgow University at tea, and the Corporation of Glasgow at a large evening reception. The hospitality shown to the Institute as a body and to members individually gave a social charm to a most interesting visit. The annual dinner will take place this year at the Hôtel Métropole, on Thursday, June 19.

Messrs. W. M. Fawcett and W. H. Seth-Smith have been elected as representatives of the Council on the Council of the Architectural Museum. The vacancy on the Board of Directors of the Architectural Union Company caused by the death of Mr. Arthur Cates, has been filled by Mr. P. Gordon Smith. The vacancy on the Tribunal of Appeal (London Building Act 1894), caused by the death of Mr. Cates, has been filled by Mr. E. A. Gruning. The President attended, as the delegate of the Institute, the Jubilee of Owen's College, Manchester, celebrated on March 12 and 13. Messrs. Thos. Blashill and John Slater have been appointed to represent the Institute at the annual Congress of the Sanitary Institute to be held at Manchester in September.

The Council regret to say that the action they have taken with regard to the execution of Mr. J. M. Brydon's design for the new Government buildings in Parliament-street, and the amended conditions for the Liverpool Cathedral Competition, has been fruitless of result. In June last, on the recommendation of the Art Committee, a letter was written to the Dean of St. Paul's urging the public exhibition of the designs for the decoration of the drum of the dome. An acknowledgment of receipt of the letter was received from the Dean. . . .

At the request of the Master of Magdalene College, Cambridge, and with the permission of Mr. Sargent, R.A., the portrait of Mr. Penrose has been copied for Magdalene College by Mr. C. N. Newton. The portrait of Professor Aitchison by Sir L. Alma-Tadema, R.A., was lent by the Council to the Royal Birmingham Society of Artists for their annual autumn exhibition.

The Council have been in correspondence with the Ulster Society of Architects, a new Society admitted into constitutional alliance with the Royal Institute of Architects of Ireland, with regard to the Belfast Corporation Bill now before Parliament. Certain clauses giving the control over the design, elevation, and height of buildings in Belfast were strongly opposed by the Ulster Society. The Council gave the Society their unconditional approval and promise of active support if needed. The objectionable clauses have been dropped in Committee of the Lords, and the Society, being successful, have withdrawn their opposition.

The resolutions passed at the general meeting on December 2, 1901, with reference to Rural District By-laws, to the effect that provisions in a model set should be made to enable Rural District Councils to regulate party walls as distinct from external walls, and also with reference to extending the regulations as to party walls laid down in the London Building Act to the whole of the United Kingdom, have been forwarded to the Local Government Board. The Board has not yet communicated its decision on these matters to the Council.

The Council, hearing of the proposed colossal building to be erected by an American syndicate on the "island site" of the Holborn to Strand improvement scheme, and seeing an illustration of the design published in a periodical, sent a protest on the subject to the London County Council, from whom they received a sympathetic and satisfactory reply.

The Joint Committee of the Royal Institute and the Surveyors' Institution have drafted a "Bill to amend the Law relating to Easements of Light," which has received the approval of the Councils of the two bodies. It has now been referred back to the Joint Committee with powers to take steps to have it brought before Parliament as soon as possible.

As the necessity of obtaining new premises is year by year growing more pressing, owing to the gradual expansion of the various interests with which the Institute is occupied, the Council have turned their serious attention to the matter. The sum of 1,000*l.* has been invested in Indian Government stock and appears on the balance-sheet appended to the Report as the nucleus of a building fund, which will be allowed to accumulate practically at compound interest. Without wishing at the present moment, when no specific building scheme is before them, to open a formal subscription-list, the Council beg leave to draw the attention of members to this fund, to the increase of which they would be very glad to receive any donations. The movement towards obtaining new premises has, however, gone so far as this :—A Joint Committee of the Council of the Institute and the General Committee of the Architectural Association have met and have reported that it is desirable for the two organisations to combine in one building scheme. The Council have approved this report, and have agreed with the General Committee of the Architectural Association that while it was desirable that they should occupy one site and have some of the accommodation in common, yet the respective premises should be to all intents and purposes separate buildings. The Joint Committee having thus reported on the desirability, are now considering the other point of their reference, *i.e.*, the possibility of the two bodies uniting in such a scheme. This can only be decided when definite sites have come under discussion. Two members of the Joint Committee have been commissioned to take steps to find a suitable site. A rough estimate has shown that the requirements of the Institute will need some 10,000 ft. super., and those of the Architectural Association 5,000 ft. super. The Council will gladly receive information as to available sites from members. The present premises are leased to the Institute until March 24, 1920, but the lease can be determined at Midsummer, 1904, by giving six calendar months' notice. Owing to the need of more accommodation the Council have had the basement-room of the Institute premises converted into an office for the assistant secretary. They have also arranged for bookcases for octavo books to be fitted along the wall of the Meeting-room, and are considering a scheme for the treatment of the wall behind the President's chair so as to allow for more picture space. In accordance with a suggestion made at the last annual general meeting, the Council have taken measures to secure more comfort and better lighting in the Meeting-room.

In order that the Institute should to some extent co-operate in their useful work with the Coal Smoke Abatement Society, the Council have arranged for one of their number to have a seat on the Committee of the Society, and Mr. W. D. Caröe has consented to serve as the Council's representative. The Council have contributed a donation of five guineas to the funds of the Society. The Council have granted a donation of fifty guineas to the Cretan Exploration Fund (Knossos Excavations). The Council have also voted a grant of twenty guineas per annum for five years to the British School at Rome.

The question of the appointment of assessors has been brought to the notice of the Council, first through the discussion at the business meeting on December 2, and again by a set of resolutions passed at an informal meeting of London architects interested in competitions. These resolutions are of a far-reaching character and demand serious consideration from the Council, who have referred the matter for report to a Select Committee of their number. . . .

The Council have great pleasure in drawing attention to the prosperous financial condition of the Institute, as shown by the facts that the balance of income over expenditure for the year is 1,300*l.*, and that during the current year 1,000*l.* has been invested in Indian Government stock and 500*l.* in Queensland Government stock, thus bringing the total amount of the invested capital of the Institute up to 11,500*l.* A statement of income and expenditure and balance-sheet for the year ending December 31, 1901, and an estimate of the income and expenditure of the present year are appended."

Reports of the various committees were also submitted. The report of the Science Standing Committee stated that the supporting power of rocks and soils is still under inquiry. The Committee are collecting particulars from various sources. The Committee have had under consideration the proposed standard sizes of steel sections. The Committee's suggestions have been forwarded to the Standard Committee of the Institution of Civil Engineers. The Committee have under consideration the subject of cement concrete in flats and floors, and are waiting the result of some further experiments to make a report on the behaviour of concrete.

The report of the Practice Standing Committee stated that: "As anticipated in our last report, the new book on 'Dilapidations' to be issued by the Institute was completed in proof at the close of last session. Copies were sent to the Council with a request that one should be sent to the Surveyors' Institution and another to the Institute solicitors asking their kind perusal and suggestions for improvement. Valuable suggestions were received from each, and these are now receiving the careful attention of the committee, who hope to complete the book by the end of this session. It is proposed to send a copy through our solicitors to the Incorporated Law Society, asking for any suggestions they may wish to make as to the purely legal parts of it. On the suggestion of the Council the committee have proposed alterations in the Institute form of contract and conditions to fit them for use when quantities are to form a part of the contract. A letter from the Bristol Society of Architects suggesting a new clause in contracts having reference to prime costs and discounts was referred to the Committee by the Council. The Committee reported that the proposed clause was not satisfactory and would introduce many difficulties, and that Clauses 27 and 28 of the Institute conditions should be generally accepted. . . . . The special attention of the Council has been called to the case of 'Hobbs *v.* Turner,' tried in the Court of Appeal in January last. In giving judgment the Master of the Rolls said that in the absence of a special contract between the general contractor and sub-contractors the building owner, and not the general contractor, is responsible to the sub-contractors for payment, as under the general scope of a contract 'privity of contract' exists between the building owner and all sub-contractors. The Committee have requested the Council to ascertain whether this decision will interfere with the conditions of contract as now published."

Scrutineers for the annual election of the Council and Standing Committees having been elected, Messrs. Louis Ambler and H. S. East were nominated as auditors.

The following gentlemen were then appointed to form the Statutory Board of Examiners under the London Building Act, 1894, and other Acts of Parliament: Messrs. Lacy W. Ridge, J. Douglass Mathews, Arthur Ashbridge, Thomas Blashill, Arthur Crow, F. W. H. Hunt, R. P. Notley, Professor Roger Smith, H. D. Searles-Wood, B. Tabberer, T. H. Watson, W. Grellier, W. E. Clifton, F. E. Eales, and F. Hammond.

The following candidates for membership were then elected: as Fellows: Mr. J. G. Sivewright Gibson, London; and Mr. H. W. Chatters, Cheltenham. As hon. Associate, Mr. A. A. Hudson, Wendover.

New Form of Building Contract.

At the same meeting the Institute was asked to sanction the issue of a form of agreement and schedule of conditions for building contracts for use where quantities form part of the contract, the document being based on the form now in use with such variations as are necessary to meet the requirements of the proposed new form. The following are the clauses of the existing form which have been modified by the Practice Standing Committee to adapt them to the new purpose, the alterations and additions being printed in italics :—

1. The works shall be carried out in accordance with the directions and to the reasonable satisfaction of the architect, in accordance with the said drawings and specification *and bills of quantities*, and in accordance with such further drawings, details, and instructions in explanation of the same as may from time to time be given by the architect. . . . The contract drawings and specification *and the priced Bills of Quantities* shall remain in the custody of the architect, and shall be produced by him at his office as and when required by the employer or by the contractor.

3. The contractor shall on the signing hereof furnish the architect with *the fully-priced bills of quantities* for his use or that of the Surveyor appointed as in Clause 13 hereof, and for the purposes only of this *contract*.

Clause 13.—The penultimate sentence to read :—

The variations shall be valued at the rates contained in the *priced bills of quantities*, or, where the same may not apply, at rates proportionate to the prices therein contained.

27. The words "prime cost" or the initials P.C. applied in the specification *and bills of*

quantities to goods to be obtained and fixed by the contractor, shall mean, unless otherwise stated in the specification *or bills of quantities*, the sum paid to the merchant after deducting all trade discount for such goods in the ordinary course of delivery, but not deducting discount for cash, and such sum shall be exclusive of special carriage, the cost of fixing, and contractor's profit.

28. The commencement of the clause to read :—

The provisional sums mentioned in the specification *and bills of quantities* for materials to be supplied or for work to be performed by special artists or tradesmen, &c., &c.

The proposals were agreed to, two members dissenting.

The meeting then terminated.

PHOTOGRAPHY AS APPLIED TO ARCHITECTURAL MEASUREMENT AND SURVEYING.*

MOST people are in the habit of looking upon photographs as more or less artistic or unartistic pictures destined to convey impressions more or less accurate or inaccurate of what things look like. Comparatively few people have yet acquired a habit of regarding photographs as accurate measurable records of external facts. The impressions which a picture yields may be, and often are, misleading ; while the relationship which exists between the picture and the objects whose images are depicted is always definite, and a little careful attention in arranging the conditions under which a picture is taken will suffice to make easy the correct interpretation of the picture. What those conditions should be, and how to interpret the picture, will be best understood if we begin by trying to understand what is the geometrical nature of a photograph.

The first fact to notice about a picture is that it is a surface. A photographer can generally arrange to adjust the surface on which to take his picture in almost any position he pleases with reference to the objects he wishes to depict, and within limits he can modify the character of the picture surface.

For most practical purposes it is best to use flat surfaces only, because a flat surface is the simplest possible kind of surface to obtain and to use. Other surfaces such as the inside of a hollow sphere or of a cylinder, might be used for special purposes, but even if such surfaces could be easily obtained and readily adjusted in correct position with reference to the lens at the time of exposure, and to the eye when under subsequent examination, the advantages of such surfaces would be much more than out-balanced by those of the ordinary flat surface for nearly all ordinary purposes.

As regards irregular surfaces there is nothing to be said in their favour. We will therefore consider flat surfaces only.

The first important generalisation we can arrive at is that the picture surface can only be an exact copy of the thing depicted when that also is a similar surface, and only then when the picture surface was parallel to the object surface at the time when the picture was taken.

Before going further it is necessary to have a clear appreciation of this generalisation and of some simple consequences which follow. Most people know that handwriting, manuscript, type-printed matter, and drawings can be copied exactly by photography, and we continually see photographic enlargements which we can perceive at a glance and prove by measurement are proportional in all directions to the originals from which the copies were made.

To illustrate the first elementary principles of our subject, let us first examine a photographic picture of straight lines and right angles arranged to form a set of regular squares. The lines whose images are now shown on the screen were originally ruled with a pen and ink on a flat sheet of paper which is here. That sheet of ruled paper was photographed in the ordinary way, due care having been taken to secure that the paper was fixed flat at the time of exposure and the sensitive plate surface parallel to the paper. A lantern slide was made in this way, and that slide is now in the lantern by which this picture is being projected on the screen. The plans of the slide in the lantern is now vertical and parallel to this screen on which the image is received. There have thus been two photographic operations with different lenses, but the result in each case has been to show all the straight lines as straight lines and all the right angles as right angles. The original ruled drawing was made up entirely of squares, so is the lantern slide picture, so is the picture now on the screen. The squares in the slide are smaller than in the original drawing. Those on the screen are larger, but except in the matter of size all three are alike. There is no perceptible binding of any of the lines, no perceptible enlargement or diminution of any of the angles. This means that there has been no perceptible distortion in any part of the picture. With any good modern lens of the rectilinear type it is the rule that the picture is true and free from any perceptible actual distortion. We will find different degrees of brightness of illumination, and, perhaps, difference in sharpness of definition between the marginal and central regions, but no straight lines will be bent, and no angles altered, and, therefore, no positions wrongly depicted. If the distance of the picture plans from the lens is changed, the size of the squares will change, but not the shape, provided the surfaces are always parallel to each other. For sharp definition the focussing adjustment of the projecting lens may have to be altered, but no distortion will result. By simple measurement with a tape it can be shown that the length of the side of any square will vary in direct proportion to the perpendicular distance from a point inside the lantern lens to the receptive screen, assuming the relative positions of the slide and lens to remain constant, and therefore the area of any square will vary as the square of the distance.

This is the ordinary rule, applicable to all rectilinear radiation from a point, whether it be light, heat, electricity, or any other form of radiant energy. We may, therefore, conveniently regard a photographic picture as a radiant production, every point of which is at the end of a straight line coming from an apical point somewhere in front of the picture. Generally that point is somewhere inside the body of the lens, but it may be outside, and either before or behind the lens, and it is called the station point.

The picture yielded by the lens is the same as would be obtained by a simple pin-hole at the station point. A good lens gives a brighter and more sharply defined picture than a pin-hole, but otherwise the pictures are the same in size and outline.

The geometrical relationship between objects and photographic images of the objects can be most easily appreciated if this lens is supposed to be replaced by a pinhole in the right position. It is then evident that the pin-hole aperture will be at the apex of a double cone of rays, the cone on one side of the aperture being made up of rays travelling from the object points to the hole, and the cone on the other side will consist of a prolongation of those rays beyond the hole until they meet the picture surface. (As a matter of fact, with lenses, the apex of the cone of incoming rays is not coincident with the apex of cone of picture rays, but the two cones are similar, and usually the distance between the apices, as not to affect materially the results, except under unusual conditions.)

With this conception always in mind that a photographic picture is a collection of points at the ends of straight lines radiating from the station point in the same directions as corresponding straight rays of light which have originally travelled from the objects depicted to that point or its adjacent counterpart, a correct understanding of many of the problems of photographic geometry becomes simple and easy. It becomes clear at once that when the true position of a picture is known with reference to its station point, any number of direction lines from the station to points on the objects depicted can be ascertained with ease, because they will be the same as the direction lines from the station to the corresponding points on the picture. To fix the actual positions of the object points it is sufficient to know their several directions from a known point and the distances of those points along the direction lines. Generally it is not convenient or easy to determine directly the distance of a point along a radius of direction. The most convenient and best way for general purposes is to find the horizontal distance first, then the altitude, when the actual line or distance will be the hypotenuse of the right angle triangle of which the horizontal distance and altitude are the sides containing the right angle. To find the horizontal distance a method of intersection similar to the plane table method of land surveying is used. Photographs of the same objects are taken from different stations. The direction rays to any point whose position is required are observed and projected on a ground plan, when the intersection of the projected rays will mark the position of the point on the ground plan.

The altitude can then be ascertained by determining from the picture the angle of elevation, and then computing the height which would subtend the observed angle at the distance already ascertained on the ground plan. Also the altitude will be a fourth proportional to three lengths, which can be measured directly. These are :—1. The distance from the station to the projection of the image point on the horizontal trace of the picture plane. 2. The horizontal distance of the point from the station measured in scale feet on the plan. 3. The measured height of the image of the point on the picture above or below the horizon.

Or it may be determined by substituting values in a general formula $h = d \tan a$ where h is the altitude above or below the station, d is linear horizontal distance, a is the angle of elevation observed from the station and tan, and is $\sqrt{\frac{y^2}{f^2 + x^2}}$ where f is focal distance, and x and y are abscissal measured from the centre on the horizon and principal vertical lines as rectangular co-ordinates.

In practice there are no considerable difficulties, provided we have enough accurate information about the pictures which are used.

Most of the troubles which were experienced in former years in practical photographic survey work (apart from purely photographic difficulties and uncertainties, which were considerable in early days) have been connected with the ascertainment of the essential facts about each picture necessary to be known or ascertained somehow before the picture could be practically used for accurate survey work.

Professors Schiffner, Steiner, Hanck, and other Continental geometricians have published, from time to time, very able, original, and learned investigations of the more intricate geometrical properties of photographs ; and it has been shown how, by aid of the five-point and three-point problems, and other geometrical and analytical methods, it may be possible to ascertain enough necessary facts about a picture to be able to make use of it for defining positions, even though the information, to start with, was defective in various ways ; but for ordinary purposes it is necessary to obtain the requisite information by quicker and simpler means.

The essential information needed may be arranged under a few heads :—First, it is necessary to know from what spot the view was obtained ; in other words, the exact position of the station point. This should be noted when the picture is taken.

Secondly, the position of the plane of projection, or the picture plane, with reference to the station. To define this position with accuracy, we need to know—(*a*) The inclination of the plane to the horizon ; (*b*) the orientation ; (*c*) the distance of the picture plane from the station point.

(*a.*) Is generally vertical. There are many and great advantages in working with truly vertical pictures only for nearly all purposes.

(*b.*) The orientation may be found by reference to images of known points whose images appear in the picture, or the compass bearing may be automatically recorded at the time of exposure.

(*c.*) Is the focal distance or distance line of the perspective. The focal length of the lens used is generally a known and constant quantity for all distant views. For enlargements it has to be computed, and it is generally advisable that the picture should bear on its face marks from which the computation can be easily made.

Thirdly, the traces of the horizon and principal vertical plane intersecting at the centre. In practice there are very great advantages in having these lines automatically traced on the picture. Evidently, also, it is not sufficient to know only the position of the

* A paper read by Mr. J. Bridges Lee, M.A., before the ordinary meeting of the Society of Arts, Wednesday, April 16, 1902. Some portions not intelligible apart from the diagrams are omitted.

plane of projection with reference to the station, it is necessary to know also the position of the picture in that plane.

The centre and the principal horizontal and vertical lines fix that position. The horizon line in every case marks the level of the station right across the picture, and forms the base from which all altitudes can be measured above or below the level of the station. If the points bisected by a horizon line be plotted on a plan, a line through those points will be a contour line of the same altitude as the station. By moving a station a known number of feet up and down, other contour lines can be obtained at any desired distances apart.

The methods so far considered and explained in outline, relate only to the fixing of points on a ground plan by the methods of intersections and of elevation by the particular methods described. These methods are almost universally applicable, and with moderate care they yield very accurate results with much less expenditure of time and money and effort than would be needed for an ordinary survey of the same ground with a plane table, or any of the other known methods of surveying. In Canada this method has been largely used, and it has been found that the actual money saving from using the photographic method was then two-thirds of the computed cost of a plane table survey. A similar saving has been computed as the result of using this method for the survey of the Trans-Baikal Railway in Siberia, and it seems reasonable to believe that with the improved instrumental appliances of the present time, and others perhaps to follow, that the saving of expense for surveys hereafter will be from 80 to 90, or perhaps even 95 per cent. of the cost of similar surveys in the past by old-fashioned methods.

When dealing with landscapes it is necessary to work for the most part by plotting selected points only, and sketching in details between the plotted points. Photographs from different stations over the same area give to the surveyor in his office the general aspect of the region, as seen from different points, for immediate comparison. They help him very much to fill in details by estimation, and provide him with ready means for checking his own or others maps by setting off any number of rays he may please to points whose positions may be in any doubt.

Existing maps cannot be checked, or corrected, or amplified by any other means without the necessity for first sending an expedition to the place, which is not always possible for military or other reasons. If a set of good survey photographs is obtained they can be brought into use at any time and anywhere, to yield just any topographical information which is wanted at the time when it is wanted, including, among other things, reliable information about the appearance and general character of the ground, which is often very important to know.

Sometimes, in landscape views, there are to be found level and perpendicular surfaces, and straight lines and rectangles, which may be conveniently dealt with on principles of perspective, a few of which it may be convenient to refer to now in connexion with the interpretation of photographs of buildings.

In the early part of this paper it was shown how a surface parallel to the picture plane gives an image similar to itself in all directions and proportions, the scale being the only variable; and it has been shown that the scale is simply the ratio of two measured distances—(1) from the picture station to the picture plane which is the same thing as the working focal distance; (2) from the object station to the object plane. When dealing with buildings, it is often possible for the photographer, without difficulty or much loss of time, to measure directly with a tape the perpendicular distance from the diaphragm of his lens to the wall of the building to be photographed. This distance can be noted on the picture. The scale can then be calculated and constructed in a few minutes, and all distances on the surface elevation can be measured directly with a pair of compasses and that scale.

Distances on parallel surfaces nearer or further away, such as projections, porches, or deep set windows or other recesses, will require different scales of measurement according to their distances in advance of or behind the principal surface, or the same scale can be used for measurement, and the results divided or multiplied by a constant computed for the difference. Another way to get the scale is to place a rod of known length in close contact with the surface where its image will be entirely included in the photograph.

Sometimes it is not convenient to walk up to a building to measure the distance to it or to place a measured length against it. A very efficient plan then is to shift the camera a measured distance to the right or left parallel to the face of the building, and take a second picture, when if due care has been taken to set up the camera perfectly square in both instances the images of the vertical hair on the face of the building will include between them a slice exactly as broad as the measured distance between the two camera stations. [This plan for obtaining regular slices of views bounded by parallel vertical planes may be used with advantage sometimes when dealing with landscape. It is, however, very necessary to be extremely careful about the orientation to secure exact parallelism.]

If the ground on which the camera stands is level with the base of the building, the height of the lens above the ground will be the same as the height where the horizon line cuts the building. This method is not often very satisfactory in practice, because of uncertainty in so many cases about the identity of the ground level.

One way to investigate flat-surface areas is to apply what is known as the method of squares. If we imagine a plane area to be entirely made up of small squares, then the position of any point in the area is sufficiently determined if it is known in which square it is located and what is its position in the square. When dealing with a front view it is sufficient to superpose on the picture a sheet of glass on which have been ruled or photographed a network of regular squares in elevation.

If the focal distance of the picture be known it is a very simple matter to compute the scale value of the squares for different distances of the object surface. When free access can be had to the building and its surroundings it should be easy in most cases to obtain pictures of such dimensions that the measuring squares shall cover definite, convenient, integral areas.

Next in order of simplicity of measurement to a simple frontal view of a plane surface will be a horizontal surface or plan. [The image was thrown on the screen of a perspective view of a ground plane divided into regular squares. This diagram was originally drawn by hand on a flat sheet of paper, in accordance with the well-known rules of perspective, and it had been photographed for projection.]

A photographic picture on a vertical plate of a regular horizontal square-tiled pavement would present a similar appearance. On a ground plan, all the small units of area included between the lines represent squares of equal dimensions, and it is evident that if an object is seen to be based in any particular square, its position is known, and can be plotted on square-ruled section paper without any trouble. The degree of accuracy will depend largely upon the size of the squares in perspective. In practice it is not convenient to make the squares excessively small, because of the additional difficulty of identification which may result. It is best to work with fair-sized squares; and having ascertained in which square a point lies, to take special care to ascertain its exact position in that square. For practical work regular series of perspective squares may be engraved or photographed on flat sheets of glass to make what are called perspectometers, which can be laid in position on the photographs with the scale surface next the picture face.

These perspectometers need to be specially constructed with precise reference to the focal length of the lens in each case. The image now thrown on the screen shows what a perspectometer is like. A study of the perspectometer is instructive also in the way of showing the general nature of photographic distortion of objects whose outlines lie in receding planes.

Time will not permit of the discussion of the interesting subject of so-called photographic distortion to-night. It must suffice for the moment to say that whatever the apparent distortions may be, they are all in strict accord with the regular law and principles of geometric perspective.

If a camera is equally constructed, and a flat surface is squarely faced, there will be no apparent distortion at all in the image. If there are receding surfaces in the object they will be fore-shortened in the picture, and distant objects may appear too small, and near ones too large in proportion. These are facts which an experienced photographer learns by practice, and which he must bear in mind when seeking to produce pleasing or artistic pictures. The laws on which these facts depend are of universal application, and if rightly understood and applied with judgment, they enormously enhance the value of photography as a means of collecting and recording information about objects, and at the same time enable us correctly to read and interpret photographs as condensed accurate records of facts such as few other documents and no mere written descriptions can rival.

The method of squares which has been spoken of as applicable to the measurement and plotting of elevations and plans can be applied also for the measurement of other receding flat surfaces such as the roofs or walls of buildings . . .

If neither a specially-prepared room nor screens are available for practice study, a level roadway between parallel brick walls or regular flat-fronted houses will answer very well for early experiments, which will soon lead to a clear perception of the fact that photographs are, in reality, true perspectives. It will soon be found, by experiment, that the image of every identifiable point is located where theory indicates that it should be, and where, indeed, it must be in obedience to immutable law, and it will be realised that just as it is possible to predict the exact arrangement of image points on a picture, from the known position of the object points, so conversely, it is possible to reason back from the picture to the object. Sooner or later the time will come when photographic projection will be systematically employed for teaching perspective, and it will be employed practically, on a large scale, for projecting images from one plane to another. Frontal planes or elevations can be directly projected in angular perspective, and *vice versâ*; and vertically inclined planes can be directly projected in plan or elevation.

If we have a perspective surface to measure, then squares in similar perspective, superposed in correct position upon the picture image, afford, in many cases, convenient means of measurement, and, provided sufficient careful attention be given to necessary details, fairly accurate measurements and approximately correct outlines of objects can be thus obtained, but in a general way, unless the dimensions to be ascertained are in planes parallel to the picture plane, and at known or easily ascertainable distances from the station. It is not wise to depend on one picture alone for working out dimensions by perspective rules. One chief reason for this caution is that the elements available on a single picture for determining depth or distance are not sufficient to secure accuracy except for very near distances. The angles between visual direction lines and the reference planes of a single perspective, are much too acute or obtuse to yield trustworthy intersections for distance.

For fixing positions by the intersection of direction lines a base is required whose length must bear some reasonable relation to the distance of the point to be fixed, and two photographs at least from different stations should be used for fixing positions. In practice a third view from a third station should be used when possible to check the results. Rectangular intersections are best and least need checking. These considerations are not at all new. Far from it. The reason for re-introducing them now is to correct possible misapprehension of what has been said before. Perspective is a fascinating and instructive subject for study, and it is quite legitimate to employ its principles for the investigation of external objects as depicted by photography, and no doubt the appropriate application of those principles will reveal to the accomplished student a much larger proportion of the geometric truths recorded by photography than will be revealed to the uninitiated, but expectation must not be pitched too high or in unreasonable directions or it will certainly lead to disappointment and discouragement. We must not expect to obtain full knowledge of unknown objects of three dimensions by aid of a single photograph, or even a number of photographs from a single point of view. To study unknown objects thoroughly we need to be able to examine them from several different points of view, and to compare the views.

The use of photography does not obliterate this necessity, though it helps very decidedly towards correct final conclusions because it records faithfully, and in obedience to definite

exact laws which can be ascertained, the appearance observed at every station, and these views from different stations can be brought close together and directly compared.

THE ARCHITECTURAL ASSOCIATION: MEMBERS' SUPPER.

THE General Committee of the Architectural Association decided some time ago to substitute an informal supper for the usual full-dress dinner, and on Friday last week the innovation was given effect to at the Hotel Great Central, Marylebone-road, Mr. W. H. Seth-Smith, President, occupying the chair. Among those present were Messrs. Wm. Emerson, President of the Royal Institute of British Architects, G. H. Fellowes Prynne, H. T. Hare, F. R. Farrow, Cole A. Adams, E. T. Hall, A. T. Bolton, W. A. Pite, H. Lovegrove, Louis Ambler, F. G. F. Hooper, R. H. Weymouth, G. B. Carvill, R. S. Balfour, H. P. G. Maule, and F. T. W. Goldsmith.

The substitution of a supper for the annual dinner was not the only innovation, for it had also been decided to dispense with toasts and speeches, the desire being, as the Chairman stated in a few words after the repast, to have a Bohemian dinner. "We are all artists," said the Chairman, "but unfortunately our art is of a practical nature; yet, for all that, we are Bohemians at heart; for the time being we are going to revert to our nature and become Bohemians."

There was one toast, however, which it was decided to have, *i.e.*, "The King," and this was briefly proposed by the Chairman and heartily honoured.

The Chairman also briefly and heartily welcomed the guests and Mr. H. Passmore, who has recently returned from the South African war. He also referred to the absence of Mr. H. A. Satchell, the editor of the "Notes," owing to a domestic bereavement, and complimented that gentleman on the able way in which he conducts the journal. Continuing, the Chairman said they specially welcomed their guest, the President of the Institute, and they felt honoured that he had come amongst them that evening.

Mr. Emerson said the Chairman had placed him in a wrong category. He was a member of the Association, and he was very glad to be present, and he hoped to have the pleasure of being with them at many more of their festive gatherings, which were amongst the most pleasant he ever attended.

Musical and other selections were given during the evening by Dr. F. Byrd Page and Messrs. Dalton Baker, F. D. Clapham, C. J. Draper, and Harrison Hill.

In the course of the evening Mr. G. H. Fellowes Prynne said it was impossible not to have one toast, and that was "The Chairman," and he desired to propose it very heartily.

The toast having been received with musical honours,

The Chairman suitably replied. He said he appreciated the assistance the Association had given him, and especially the Committee to whom much of the success of the Association was due. It was only within the last few weeks, during his absence from the work of the Association, that he realised how easily everything went along. It had been a great pleasure to him to do what little he had done for the Association, and he cherished their kindly feeling and sympathy.

On the motion of the Chairman, hearty thanks were accorded to Mr. G. B. Carvill and his friends for organising the excellent entertainment that was given during the evening.

The attendance was larger than at previous dinners of the Association, and those present spent a very pleasant evening. The General Committee should feel satisfied with the result of the innovation.

The Soirée.

The annual members' soirée (smoking) will be held at St. George's Hall on Wednesday, June 4, at 8 p.m. A musical play will be performed, entitled "Arctia: A Legend of the Far North," written by Mr. Gervase Bailey, music by Mr. Leonard Butler. A dress rehearsal (ladies' night) will be given on Tuesday, June 3, at 8 p.m.

DEVONPORT DOCKYARD ORPHANAGE.—For the new home, the Board of the Devonport Royal Dockyard Orphan Asylum have secured a site in Milehouse-road. The work has just been commenced. Mr. Soell is the architect.

PROVISION OF MEANS OF ESCAPE IN CASE OF FIRE.

THE Building Act Committee of the London County Council brought up the following report at their meeting on Tuesday, the recommendation being agreed to:—

"By the provisions of the Factory and Workshop Acts, 1891 and 1895, the duty was imposed upon the Council of seeing that each factory or workshop situated within the Administrative County of London, in which more than forty persons were employed, was provided on the stories above the ground floor with such means of escape in case of fire for the persons employed therein as could reasonably be required in the circumstances of each case. With a view to assisting owners (1) of new buildings in making applications for the Council's certificate that their premises were provided with proper means of escape in case of fire; (2) of old buildings in submitting proposals to comply with the requirements of the Council, it was found desirable to draw up a statement as to the means of escape that would in general be required. Such a statement was adopted by the Council on June 13, 1899, but, in consequence of the passing of the Factory and Workshop Act, 1901, it is necessary to make certain alterations in it, the principal one being that means of escape are now required to be provided from all floors instead of from all floors above the ground floor. The other alterations are in the main rendered necessary by the substitution of the Act of 1901 for the earlier Acts. We recommend that the Council do approve the following statement with reference to its requirements in respect of the means of escape in case of fire from factories, workshops, &c., in accordance with the provision of the Factory and Workshop Act, 1901":—

"By the provisions of Sections 14, 103 (1) (*d*) and 153 (1) of the Factory and Workshop Act, 1901, the duty is imposed upon the London County Council of seeing that each factory, workshop, or laundry situated within the Administrative County of London in which more than forty persons are employed, is provided with such means of escape in case of fire for the persons employed therein, as can reasonably be required in the circumstances of each case.

The Council approved the following statement with reference to the requirements in respect of the means of escape in case of fire to be provided in accordance with the provisions of the above Act, with a view to assisting factory owners and others in making application for the Council's certificate, or in submitting proposals to comply with the Council's requirements in respect thereof. 'This statement must not, however, be taken as binding upon the Council, but only as a general guide or indication, since each case is, after full consideration of the varying circumstances, dealt with upon its merits; and nothing herein contained must be taken as in any way interfering with or derogating from the powers of the Home Office, the Council, the district surveyors, or of any other authority whatsoever under the Factory Act, the London Building Acts, or any other Act, or under any by-laws that may be made under section 15, section 153, sub-section 3, of the Factory and Workshop Act, 1901, or under any by-laws or regulations relating to the construction of buildings or otherwise, or as constituting any consent, sanction, allowance or permission under any such Act, by-law or regulation, but all such Acts, by-laws and regulations may be fully observed and complied with notwithstanding anything herein contained.'

Applications.

1. Applications for the Council's certificate in respect of the means of escape from new buildings, and applications with proposals to meet the Council's requirements in respect of the means of escape from old buildings should state:—

(*a*) The number of persons employed or to be employed on the premises, specifying the number of males and females employed or to be employed on each floor.

(*b*) The trade carried on or to be carried on on each floor, with particulars of machinery, power, &c.

(*c*) In the case of existing buildings used as factories, whether the premises were erected before January, 1892, and in the case of workshops and laundries, whether erected before January, 1896.

(*d*) The name and address of the owner.

(*e*) Particulars of the occupation of the building if existing, and if any part is used otherwise than as a factory or workshop or laundry, particulars of the tenancy of such part should be furnished.

2. Applications should be accompanied by complete plans and sections drawn on the unglazed side of tracing linen to ½-in. or ¼-in. scale (¼-in. scale preferred), and by a block plan to a small scale showing the premises and the surrounding buildings and thoroughfares, such block plan to have the north point indicated.

Means of Escape.

3. The number of staircases required depends, *inter alia*, upon the following circumstances:—

(*a*) The area of the building.

(*b*) The number of persons employed or which could be employed.

(*c*) The disposal of the workpeople.

(*d*) The alternative means of escape which may be available.

4. It may, however, be laid down as a general principle (subject to the exceptions hereinafter mentioned) that distinct and separate alternative means of escape, exclusive of windows, loop-hole doors, &c., are required from each floor, by one of the following means:—

(*a*) A second staircase in the same block.

(*b*) A proper staircase in another block, to which access is available on all the floors by proper openings in the party or division walls, or by external communication.

(*c*) Open iron bridges where the blocks are not adjoining each other.

5. The means of escape from each of the floor levels should be placed as far apart as possible.

6. In all cases where practicable, some means of escape from the roof of the building to the roof of adjoining premises should be provided.

7. In small and inextensive premises, and in some cases where it is possible to provide a staircase in a central position, one properly inclosed staircase, constructed of incombustible materials, may be accepted; but in all cases where only one staircase is provided, some means of escape from the roof to the roof of adjoining premises, *must* be provided.

Internal Staircases.

8. Staircases should be placed next to an outer wall, and must be so arranged as to deliver by means of a doorway, not less than 4 ft. 6 in. wide in the clear when the doors are open, direct into the outer air at the ground level into a public way or thoroughfare or some large open space. Staircases must also be so arranged that persons enter them from any floor level in the same direction as persons descending the staircases.

9. Staircases must be properly lighted and ventilated by windows.

10. Staircases, including landings and passages from one flight to another, must be inclosed with newel and inclosing walls, not less than 9 in. thick, carried up above the roof and ceiled with iron and concrete.

11. Staircases must be constructed of incombustible materials, with solid square or spandrel steps, arranged in straight flights, without winders; each flight must consist of not more than fifteen steps, which must be supported at both ends on brickwork, and landings must be provided at the top and bottom of each flight and between the flights. The steps and landings must be of the same width as the staircase (*see* No. 14) and not less than 6 in. thick. In the case of spandrel steps, however, the thickness at the smallest part may be set out as in No. 16.

12. The treads of the staircases must be not less than 10 in. wide clear of nosings, and the risers not more than 7½ in. high.

13. Staircases must be provided with handrails fixed upon both sides thereof and continued round the landings and chased into the ends of the newel walls.

14. The width of the staircases is to be regulated as follows:—

(*a*) Where the premises are adapted for the employment of less than 200 persons on the floors above the ground floor, the staircases must be not less than 3 ft. 6 in. wide.

(*b*) Where the premises are adapted for more than 200 persons on the floors above the ground floor, or where more than 100 persons are employed on any one floor above the ground floor, the staircases must be not less than 4 ft. 6 in. wide.

15. Staircases must in all cases be connected with all floors and the roof by means of doorways of the same width in the clear when the doors are open as the staircases.

16. Spandrel steps, where used, must be of the following thickness:—

(*a*) For 3 ft. 6 in. staircases, not less than 3 in. thick in the smallest part.

(*b*) For 4 ft. 6 in. staircases, not less than 4½ in. thick in the smallest part.

17. All doorways to staircases must be fitted with doors of fire-resisting materials (solid teak or oak 2 in. thick or other approved material) in two folds, hung so as to open in the direction of exit or to swing both ways clear of steps, landings, passageways, and footways; such doors must be fitted with springs, weights, or other approved appliances to close them after use, and, if required to be fastened during the time the workpeople are upon the premises, be fitted during such time with automatic bolts only, so that the doors open by pressure from the inside.

18. In the case of old buildings* (in respect of which the Council is not required to issue a certificate) where there is a distinct and separate alternative means of escape provided to the satisfaction

* By the term "old buildings" is meant those of which the construction was begun before—
In the case of factories, January 1, 1892.
In the case of workshops and laundries, January 1, 1896.

of the Council, from each of the upper floors, the inclosed staircase may be constructed of teak or oak, not less than 2 in. thick, including the treads, strings, carriages, bearers, landings, joists, and floors, the risers to be not less than 1 in. thick, but no fir or pine must be used; and the inclosure to the staircase may be a solid partition of incombustible material at least 3 in. thick; but such staircase must, in all other respects, be formed and arranged as required for a staircase for a new building as regards width, going, treads, risers, doors, handrails, &c. (see Nos. 8-17).

External Staircases.

19. In cases in which external iron staircases are accepted by the Council as means of escape they must be constructed with dead bearings and without cantilever work.

20. They must comply with the requirements Nos. 8-17 as regards width, going, width of treads, height of risers, doors, handrails, &c.

21. They must deliver into the outer air at the ground level into a public way or thoroughfare, or some large open space.

22. Where an iron staircase is in general use the treads must be of approved non-slippery material, as distinguished from perforated iron or chequered iron plates.

23. All windows and similar openings by, or near, any such staircases must be protected with kiln wire, or glazed with a combination of glass and wire or other approved fire-resisting glazing.

General.

24 Proper guard rails must be provided to the routes of escape on roofs, &c., where necessary, to the satisfaction of the Council.

25. Clear gangways, at least 3 ft. 6 in. wide, must be kept up to, and between, all staircases, bridges, and exits on all floors.

26. All doorways, and all passageways, must, where of a less width than 3 ft. 6 in. be increased to that width.

27. All doors usable as means of exit must be made so as to open in the direction of exit, or to swing both ways clear of steps, landings, passageways, &c.

28. All such doors must, if required to be fastened during the time the workpeople are upon the premises, be fitted during such time with automatic bolts only.

29. Lifts should be inclosed all up with brickwork 9 in. thick, or with incombustible material of approved quality and thickness, and fitted with iron or other fire-resisting doors, unless, with the approval of the Council, such lifts be inclosed with fire-resisting materials to a height of 4 ft. above each floor level, and above this with stout wire-mesh guard.

30. Lifts must be kept at some distance from staircases, and must in no case be connected directly therewith by means of openings or otherwise.

31. All windows on the floors above the ground floor, facing the public way, street, thoroughfare, or open space, must be made to open easily at sill level to a sufficient height and width to allow a full-grown person to pass through in case of need."

COMPETITIONS.

WESLEYAN METHODIST CHAPEL, ROTHERHAM.—The building committee of the new chapel of the Wesleyan Methodists of Rotherham met recently to adjudicate on competitive plans which had been prepared by four architects. After a long examination the committee proceeded to vote by ballot, when it was found there was a majority in favour of the design of Messrs. Morley & Son, of Bradford. The second place, according to vote, was assigned to the plan of Mr. J. E. Knight, of Rotherham. The third in order of preference was the design of Mr. J. Smith, of Sheffield.

DESIGNS FOR WALL PAPERS.—In the illustrations of these given last week, the "Japanese Rose" design should have been given as "by A. F. Vigers," not "A. F. Rose." The mistake was not ours; the name was written so on the example sent to us.

BATH ELECTRIC LIGHT WORKS.—On the 1st inst. Mr. Bicknell, Local Government Board inspector, held an inquiry at the Bath Guildhall into the application by the Bath Corporation for power to borrow 25,000*l.* in respect of electric light works. Mr. J. Allsebrook Simon appeared for the Corporation, and explained that 12,000*l.* of the amount in question was money already expended, but admitted this was a serious excess of sanction, which had arisen owing to the Corporation having to meet the constantly increasing demands. Mr. Teague, electrical engineer, said the new plant would probably carry the city through next and the following winters, but expected that in a year or eighteen months they would have to come for a loan for further plant. Mr. Manville, electrical expert, said it was proposed to introduce continuous current for the whole of the centre of the city, and to lay extensions in the suburban areas with the alternating current, which was better adapted for that purpose. It was not with any idea of making the plant suitable for electric trams that the continuous current was being introduced.

Illustrations.

ENTRANCE TO THE SCOTTISH NATIONAL PORTRAIT GALLERY.

THIS view represents the principal entrance to the Scottish National Portrait Gallery and Museum of Antiquities, erected by the Board of Manufactures from funds generously given by the late Mr. John Ritchie Findlay, of Aberlour.

In preparing the designs for this building special attention was given to the desirability of bringing sculpture into a closer alliance than hitherto with architecture.

The designs were prepared by Dr. Rowand Anderson, and the sculpture of this part of the building was executed by Mr. Birnie Rhind with the exception of one of the figures, which was executed by the late Mr. John Rhind.

In the quatrefoil panel over the doorway the sculpture represents the Royal Arms of Scotland as adopted by the Board of Manufactures, and in the cusped panels in the spandrels of the principal arch are shown busts symbolical of "Peace" and "War." In the three panels under the sill of the main window, the centre contains the "Fine Arts," on the right hand are the "Ruder Arts," and on the left the "Sciences." In the large panel above the windows on the gable the subjects represent "Scotland Enthroned," supported on the right by a figure symbolical of "Industry," and on the left by one representing "Religion." In the quatrefoil panel in the main gable above is an early rendering of the "Royal Arms of Scotland," and the figure forming the finial is that of "Fame," inscribing the names in the book of history. In the upper two niches, that on the right holds the figure of "Malcolm Canmore," one of the early Kings of Scotland, while the other shows his Consort, "Queen Margaret," who holds in her hand a model of Dunfermline Abbey, indicative of what she did for the Christian faith in Scotland. In the lower niches, that under King Malcolm is "Sir William Wallace," and on his left "King Robert the Bruce."

THE BUCCLEUCH MONUMENT, EDINBURGH.

THIS monument was erected by friends and fellow-countrymen of the late Duke of Buccleuch. It stands in the open space at the west end of St. Giles Cathedral, Edinburgh.

The figure, by the late Sir Edgar Boehm, is in bronze. The architectural detail of the monument is also in bronze. The sculptured panels represent incidents in the history of the Buccleuch family, and are by various artists. The bucks surrounding the principal pedestal support shields displaying the heraldry of the family.

The monument was designed by Dr. Rowand Anderson, of Edinburgh.

FOXCOMBE, NEAR OXFORD.

THE illustration shows a country house not entirely new, for the plan incorporates a small house now occupying a beautiful position on Boar's Hill.

The scheme provides a large hall, with open timber roof and mullioned windows, the staircase and screen being at one end of this hall. At the other end are the billiard-room and morning room, with bedrooms above. These latter are approached by their own turret stairs as well as by a gallery in the hall. Bachelors' rooms are provided in the upper part of the tower, the lower stage of which forms a gateway or carriage porch. The building is to be roofed with Colleyweston stone.

Messrs. Ernest George & Yeates are the architects; and Messrs. Hayward & Wooster, of Bath, are the contractors.

The drawing is exhibited at the Royal Academy.

OAK REREDOS, LEWES.

THE drawing shows the oak reredos in the Church of St. Thomas, at Cliffe, Lewes, Sussex, together with the panelling round the sanctuary. The space at the east end of the chancel being somewhat contracted, advantage was taken of the recess of the east window and the reredos was set back into the recess, the treatment being continued at the sides. Under these conditions the "eastward position" in celebrating became a necessity.

The brattishing, cornice, and diaper work was very carefully carried out, the general effect being richness and delicacy. Mr. Hems, of Exeter, was the carver responsible for the work, the cost of the reredos proper and side wings being 80*l.* The altar, though it formed part of the complete design, was delayed for want of funds, and has not yet been executed. At the time several structural alterations in the church were considered more necessary. The side of the chancel arch had given way, and it was entirely reconstructed. Later the chancel was decorated with colour. The design for the reredos was supplied, and the several structural works and decoration carried out, by Mr. Thos. Garratt, architect, Kingston Hill.

BATTERSEA WORKING MEN'S DWELLINGS COMPETITION.

THIS is No. 1 of the five sets of plans, by Messrs. G. T. Smith & Weald, to which the first premium in the above-named competition was awarded.

We have been unable to get any information from the architects in regard to it, and must refer the reader to our own remarks on the competition drawings in our issue of April 26.

METROPOLITAN ASYLUMS BOARD.

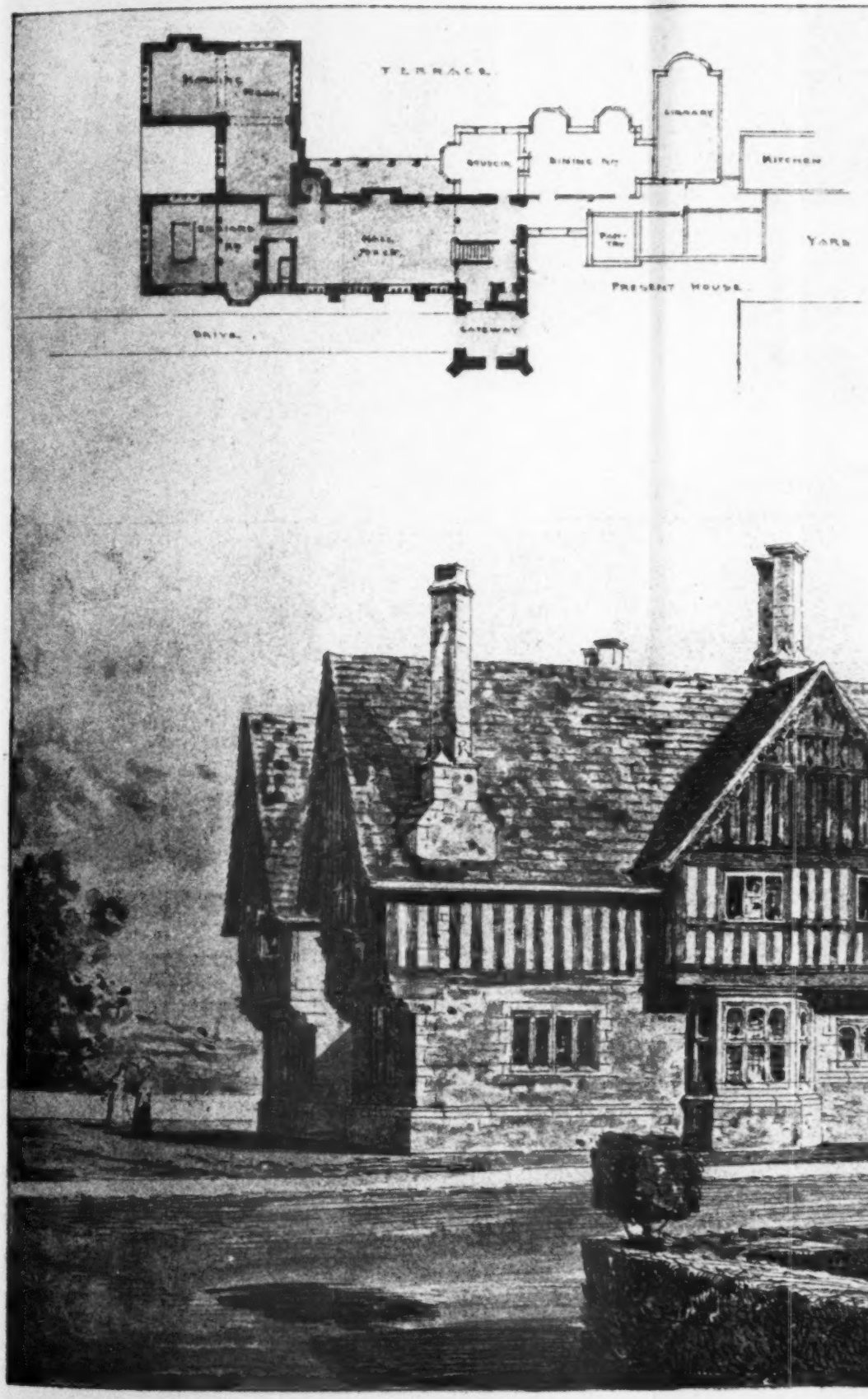
THE fortnightly meeting of this Board was held on Saturday, Mr. Henson presiding.

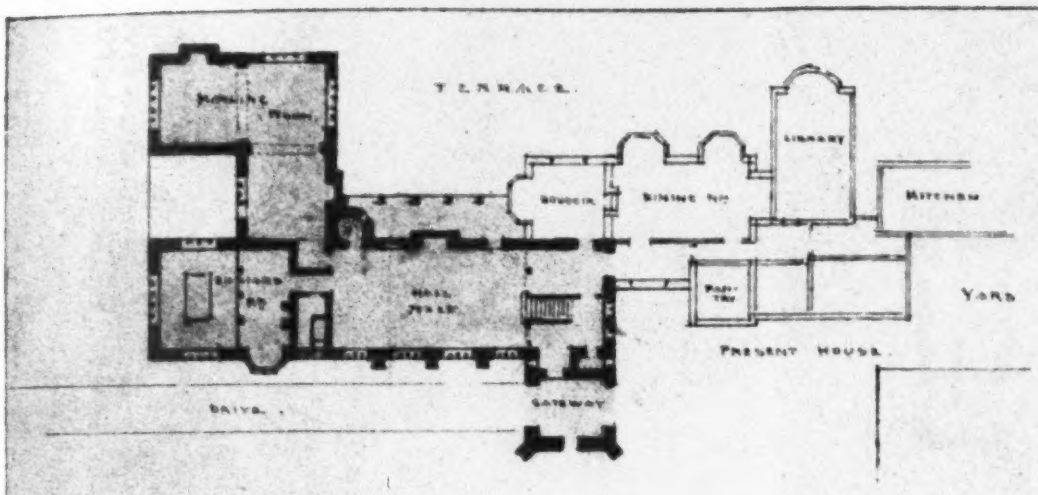
The Works Committee submitted an amended statement showing that the expenditure incurred in respect of the erection and fitting up of the new laundry, boiler-house, and rain-water reservoir at the North-Eastern Hospital had been 15,323*l.* 17s. 10d., including balances of 200*l.* due to Messrs. McCormick & Sons, 100*l.* to Messrs. Bradford & Co., and 176*l.* 19s. 4d. to the architects. Of the total sum of 15,323*l.* 17s. 10d, thus expended, 9,955*l.* 8s. 10d. had been in respect of Messrs. McCormick & Sons' contract for the building work, and 4,586*l.* 19s. 6d. in respect of Messrs. Bradford's contract for laundry machinery. The amount of expenditure sanctioned by the Local Government Board was 14,801*l.*, but in the course of carrying out this contract, certain extras were ordered and reported to the managers from time to time—such extra works consisting of 328*l.* for improving the airing room accommodation, 451*l.* for extra concrete foundations, and other matters connected with the laundry machinery, and 394*l.* for a new trolley road between the old and new buildings. A provision for contingencies in the contract partly met the cost of these extra works, but on making up the final statement of account, it appeared that the amount sanctioned by the Local Government Board has been exceeded by 522*l.* 17s. 10d.

The Board adopted the report.

The Ambulance Committee reported that, pursuant to authority, they had obtained the following tenders for the erection at Leavesden Asylum of a boot-room and a building comprising a hair-picking room and accommodation for a steam disinfector, in accordance with plans approved by the Managers of the Local Government Board:—

Building Work.—Tonge, R. L., Watford, 1,620*l.*; Wiggs, G., Watford, 1,692*l.*; Tyler & White, Watford, 1,712*l.* 15s. 2d.; Dupont & Co., Watford (first tender 1,842*l.* 4s. 5d.), 1,746 10s. 7d.; Gardner & Hazell, Islington, N., 1,763*l.* 12s. 9d.; Watkins, H. B., Watford, 1,791*l.*; Clark Bros., Watford (first tender, 1,873*l.* 11s. 4d.), 1,807*l.* 10s. 8d.; Wall, E., Lower Tooting, 1,866*l.*; Payne, J., Hemel Hempstead, 1,963*l.*; Moscrip, S. W., Willesden Junction, 2,061*l.* 1s. 11d. The first advertisement for the building work produced only three tenders, the lowest of which was Mr. Tonge's at 1,620, who subsequently stated that he saw no reason to alter it. For engineering work the tenders were:—The Watford Engineering Works, Watford, 188*l.*; Werner, Pfleiderer & Perkins, Ltd., Regent-square, W.C. 214*l.*; May, J. & F., London, W.C., 216*l.*; Dawson & Co., Ltd., Stalybridge, 260*l.*; Joel & Potter United, Ltd., South Moulton-street, W., 260*l.*; Paragon Heating Co., Birmingham, 270*l.*; Beavan & Sons, Victoria-street, Westminster, S.W., 270*l.*; Crittall & Co., Noel-street, W., 313*l.*; Haden & Sons, Trowbridge, 318*l.*; Herring & Son, Chertsey, 320; Greenwood & Co., Dobeross, near Oldham, 340*l.*; Fairbrother & Co., Fann-street, E.C., 347*l.*; Brightside Foundry & Engineering Co., Ltd., Victoria-street, Westminster, S.W., 387*l.*; Crowe, R. A., Manchester, 402*l.*; Reed & Sons, Ltd., Brighton, 445*l.*; Thomas & Taylor, Ltd., London, N., 450*l.*; Williams & Sons, Cardiff, 460*l.*; Esson, C., Fetter-


TERRACE
LIBRARY
KITCHEN
YARD
PRESENT HOUSE
DRIVE
GATEWAY



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Ir. Henson presiding.
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& F., London, W.C., 216*l.*;
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., Birmingham, 279*l.*; Beavan
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Herring & Son, Chertsey, 320;
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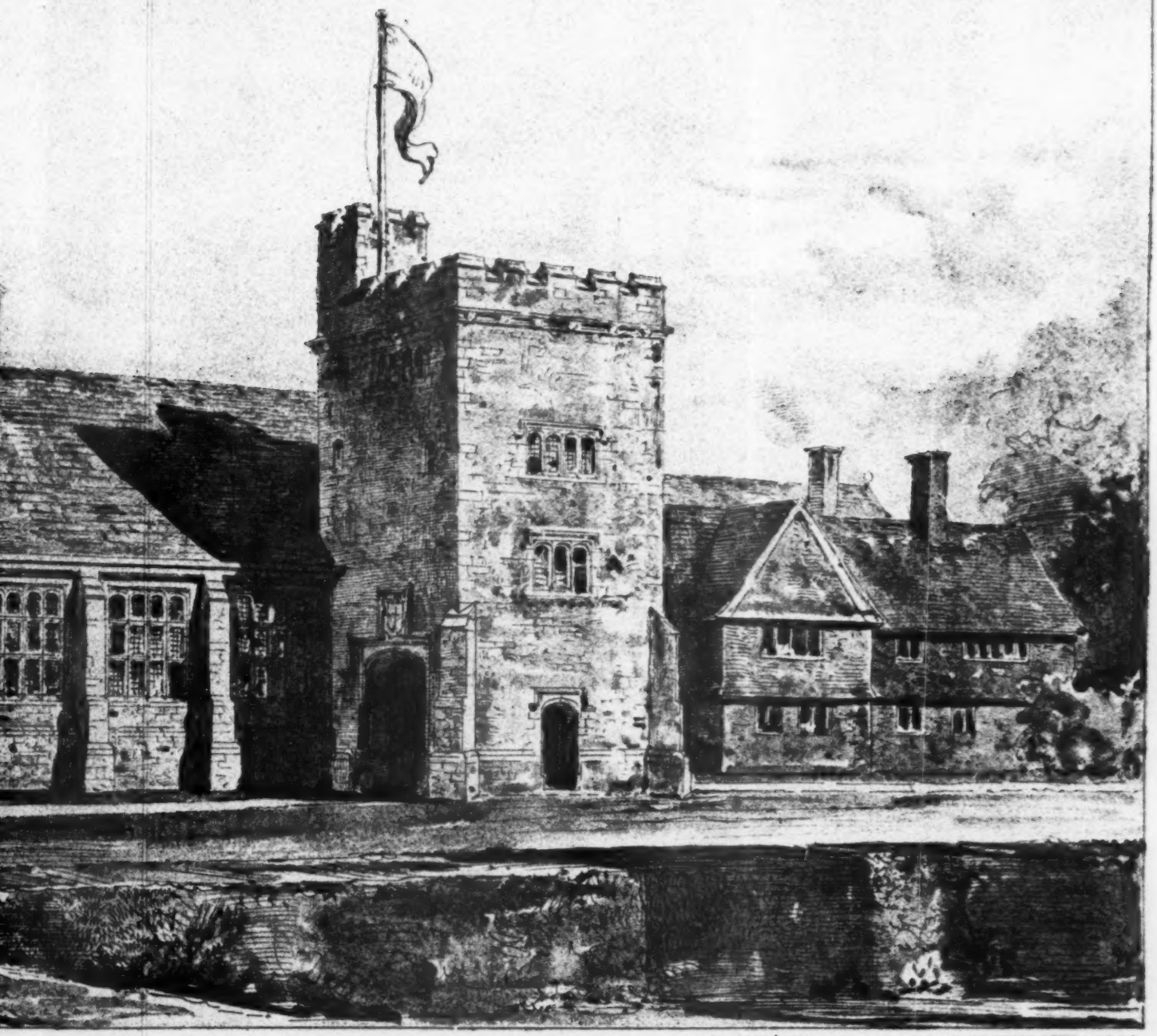
FOXCOMBE, OXFORD
FOR LORD BERKELEY
ERNEST GEORGE & YEATES
ARCHITECTS



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OAK REREDOS
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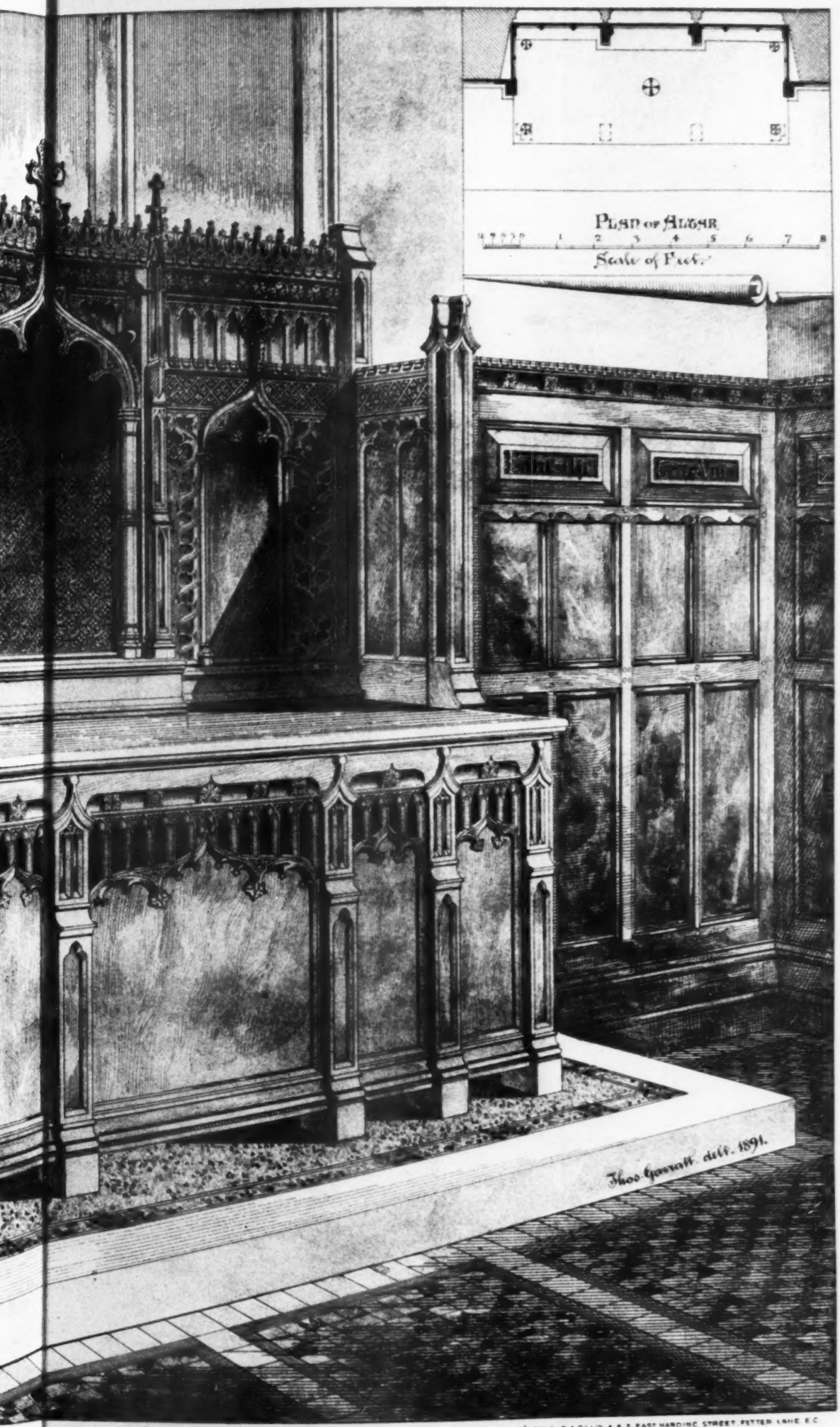

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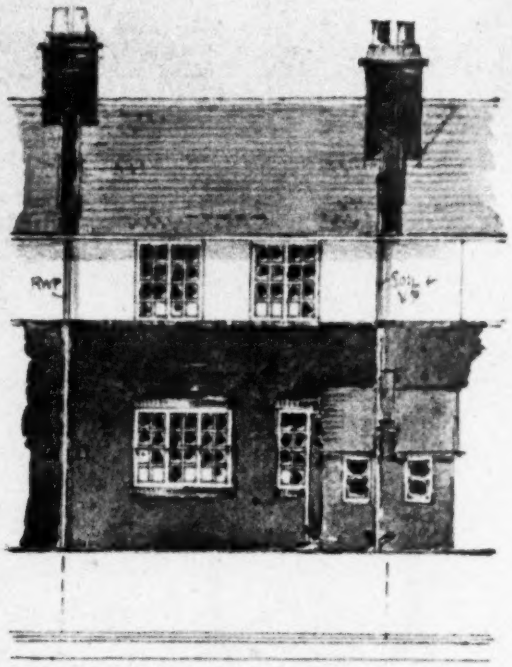
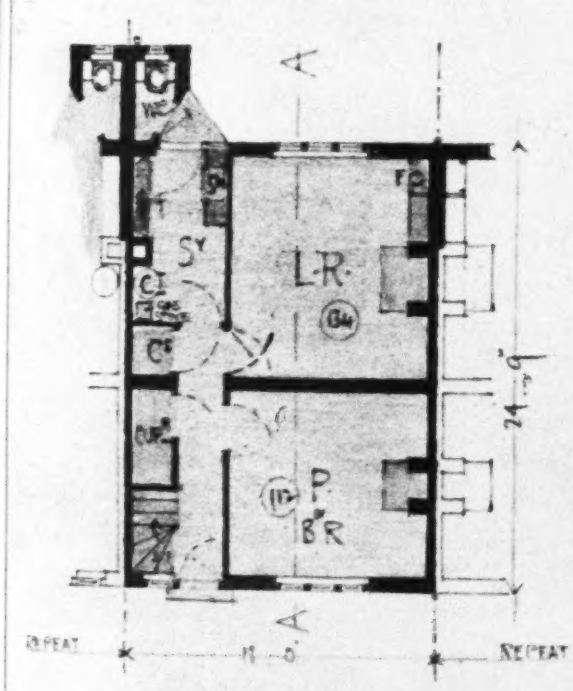
5 ROOMED HOUSE
TWO STORIES HIGH

FRONT ELEVATION

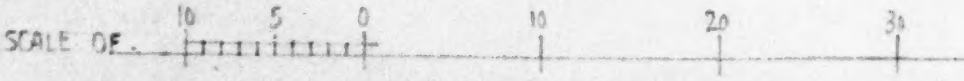


BACK ELEVATION



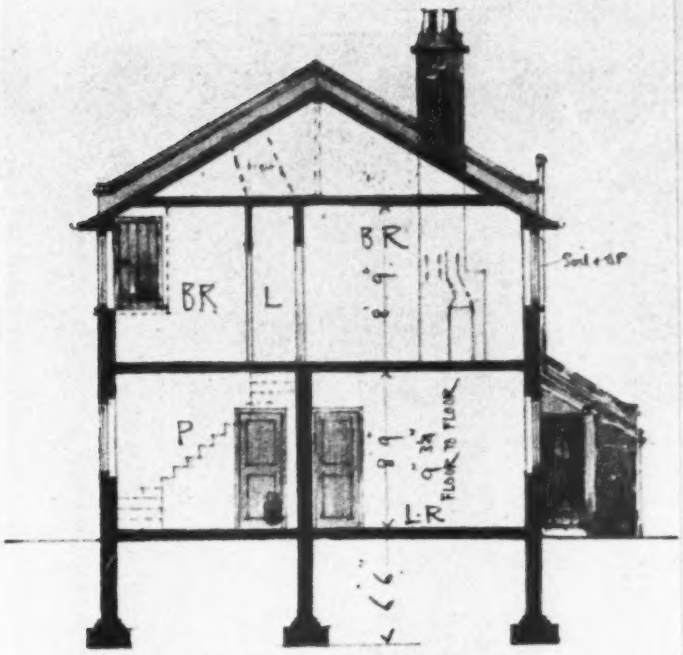
GROUND FLOOR PLAN

FIRST FLOOR PLAN

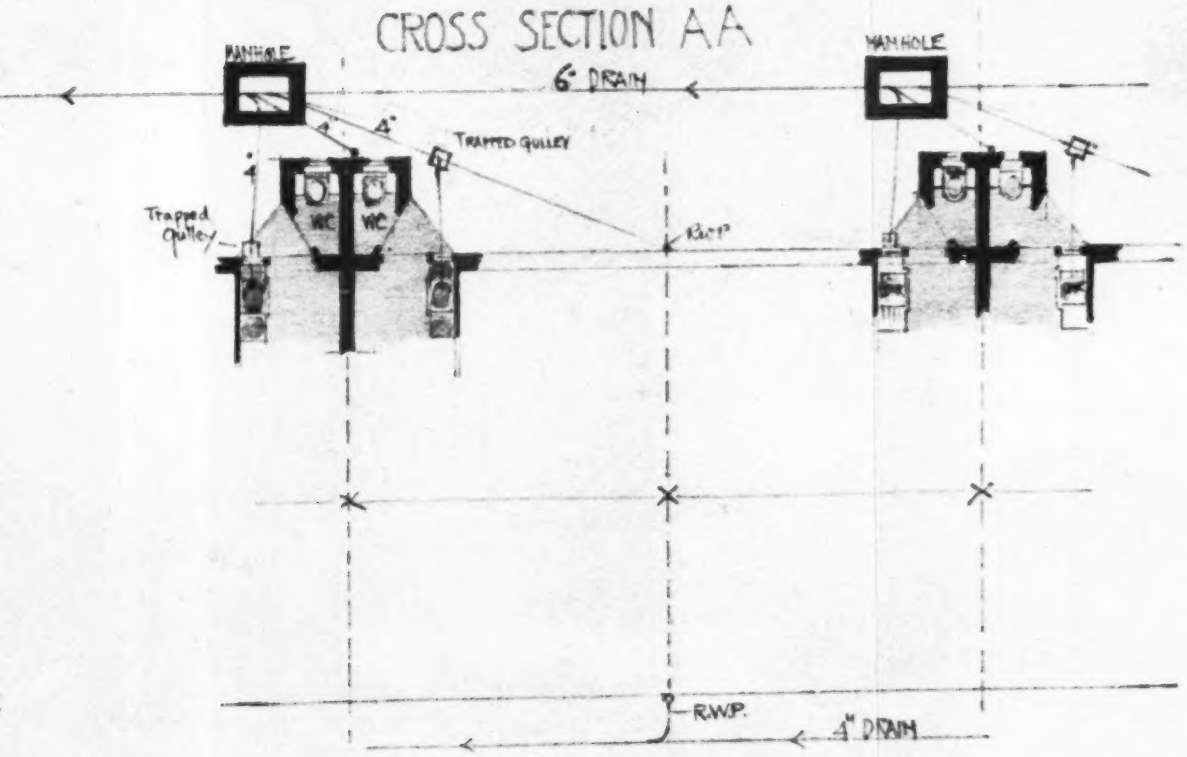


BATTERSEA WORKING-CLASS HOUSES COMPETIT

MESSRS. SMITH



CROSS SECTION AA



DRAINAGE PLAN

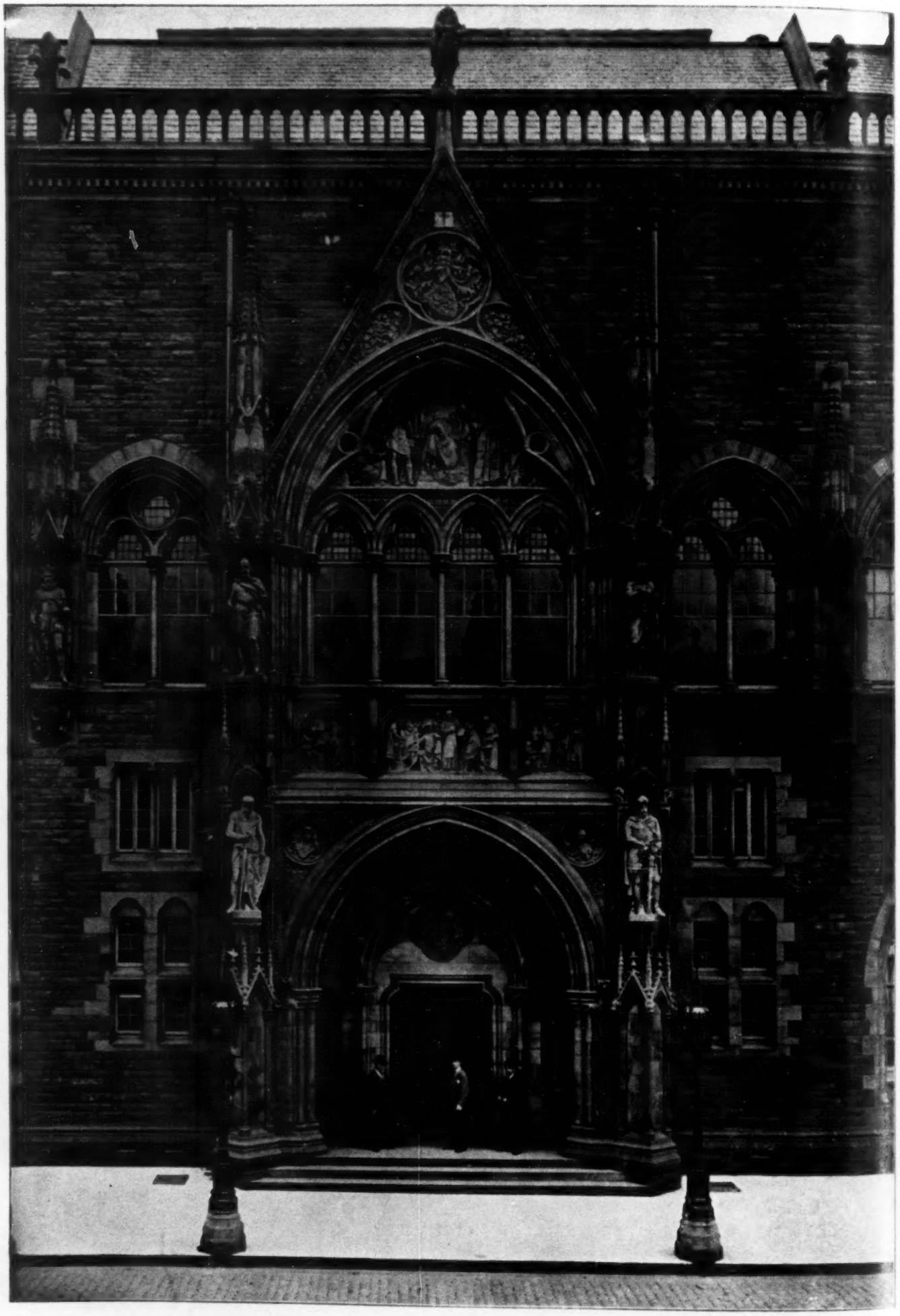
30 40 50 FEET

L.R	DENOTES	LIVING ROOM
P	"	PARLOUR
SY	"	SCULLERY
SK	"	SINK
CS	"	COALS
C	"	COPPER
BR	"	BED ROOM
B	"	BED.
(110)	"	FLOOR AREA IN SUPERFICIAL FEET.

"BK. PHOTO" SPRAGUE & CO LTD 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

ES COMPETITION. No. 1 OF THE FIRST PREMIATED SET OF PLANS.

MESSRS. SMITH & WEALD, ARCHITECTS.



Sprague & Co., Ltd., Printers, 4 & 5 Fleet Lane, E.C.

DOORWAY, NATIONAL PORTRAIT GALLERY, EDINBURGH.—Dr. Rowand Anderson, Architect.

Spottiswoode & Co., Ltd., Printers, 4 & 5 New Street Square, E.C.

BUCCLEUCH MEMORIAL, EDINBURGH.—Dr. Rowand Anderson, Architect

lane, E.C., 545*l.*; Clarke, R., Featherstone-street, E.C., 551*l.*

One of the reasons that induced the Committee to re-advertise for tenders for the building work was the fact that the Engineer's estimate of cost was 1,550*l.*, made up as follows:—1,150*l.* for hair picking building and 400*l.* for bootroom, or 1,370*l.* for building work and 180*l.* for engineering. It would, therefore, be seen that the lowest tender for building work was 250*l.* higher than the Engineer's estimate of 1,370*l.*, and in view of the fact that the Local Government Board had limited their sanction to an expenditure of 1,550*l.* on the buildings in question, viz., 1,150*l.* for the hair-picking building and 400*l.* for the bootroom, which estimated amounts included engineering work, they thought that before any tenders were definitely accepted, the Board's consent should be obtained to the increased cost. They, therefore, submitted the following recommendations:—

"That, provided the Local Government Board consent to authorise the expenditure of an additional sum of not less than 258*l.* in the provision of a hair-picking building and a boot-room at Leavesden Asylum, the following tenders be accepted and the seal of the Managers affixed to the contracts:—Mr. R. L. Tonge, for building work, 1,620*l.*; the Watford Engineering Works, for engineering work, 188*l.*"

The recommendation was agreed to.

ENGINEERING SOCIETIES.

THE INSTITUTION OF CIVIL ENGINEERS.—At the annual meeting of the Institution of Civil Engineers, held on Tuesday evening, Mr. Charles Hawksley, President, in the chair, the result of the ballot for the election of officers was declared as follows:—President, Mr. J. C. Hawkshaw, M.A.; Vice-Presidents, Sir William White, K.C.B., Mr. F. W. Webb, Sir Guilford Molesworth, K.C.I.E., and Sir Alexander Binnie; other Members of Council, Mr. James Barton (Dundalk), Mr. Horace Bell, Mr. B. Hall Blyth (Edinburgh), Mr. Cuthbert A. Brereton, Mr. John Brown (Cape Town), Mr. R. Elliott Cooper, Colonel R. E. B. Crompton, Mr. Cecil West Darley, Mr. George F. Deacon, Mr. W. R. Galbraith, Mr. E. P. Hannaford (Montreal), Mr. G. H. Hill, Mr. J. C. Inglis, Mr. G. R. Jebb (Birmingham), Dr. Alexander B. W. Kennedy, Sir William Thomas Lewis (Cardiff), Mr. J. A. McDonald (Derby), Mr. William Matthews, C.M.G., Mr. William Shelford, C.M.G., Mr. Alexander Siemens, Mr. Henry C. Stanley (Brisbane), Mr. John Strain (Glasgow), Mr. John I. Thornycroft, Professor W. C. Unwin, B.Sc., Mr. F. R. Upcott, C.S.I., Sir Leader Williams (Manchester).

SOCIETY OF ENGINEERS.—At a meeting at the Royal United Service Institution, Whitehall, on May 5, Mr. Percy Griffith, President, in the chair, a paper was read on "Recent Blast-Furnace Practice," by Mr. Brierley D. Healey. The author dealt *seriatim* with the plant and machinery of an ironworks from the blast furnace to the pig-bed and slag-removal appliances, and drew comparisons between old and new methods of working, showing what great advances had been made during the past forty years in blast-furnace practice. For instance, the average output of British furnaces forty years ago was about 200 tons of pig-iron per week, but now it is not difficult to obtain 200 tons per day, and as much as 305 tons has been smelted in one day, and 1,735 tons in one week, at a modern works. The author pointed out that the production of pig-iron in Great Britain in 1901 was 7,385,198 tons, whilst in the United States during the same year it was 15,878,354 tons. In the year 1885 Great Britain produced 7,415,469 tons, and the United States 4,044,526 tons. The author described the latest improvements in blast-furnace plant, including the Ford and Moncur and the Stevenson and Evans hot-blast stoves; the Gjers and Harrison temperature equaliser; the Thwaite-Gardner blast-furnace gas-engine and gas-treatment plant; the Foster tuyère cooling system; the author's furnace hoist and charging hopper; the Thwaite blast-furnace bell-top; the Hawdon pig-casting machine; and the Dewhurst slag ladle. He then made some very practical references to the need for utilising the by-products, and particularly to the use of the gases from the blast furnaces for driving gas-engines for blowing purposes and for electric lighting and power for the minor machines. He mentioned a case where the gases would not burn in the steam boilers without the help of solid fuel, but which were used in the gas blowing engines at the same works without any difficulty whatever. The author showed the importance of securing more uniform temperature for the hot blast by the use of equalisers, and of increasing the output of strongly built existing furnaces by slight alteration of crucible, and an increased volume of blast obtainable from their own gases. He stated that the gas from a 1,500 ton per week furnace working on coke, after allowing seven-twentieths for heating the blast, 900 i.h.p. for gas-driven blowing engines, and 100 i.h.p. for charging the furnace and clearing away the slag, left a surplus of 5,000 i.h.p. for electrical energy. That would be more than sufficient to drive the whole of the machinery of an adjoining steel rolling mill of equal capacity to the blast-furnace output, and also to provide for lighting the works, offices, and workshops. From calculations submitted by the author it was assumed by him that 6 i.h.p. per hour was obtainable for every ton of iron produced per week in coke-fed furnaces. From the total power thus ascertained provision has to be made for heating and compressing the blast and for working the plant, as shown in the 1,500-ton example. He stated that designs were being prepared for the rebuilding of one works in Staffordshire, where a very special feature will be the absence of steam boilers, the power obtainable from the furnace gases being fully utilised.

ARCHITECTURAL SOCIETIES.

LEICESTER AND LEICESTERSHIRE SOCIETY OF ARCHITECTS.—The twenty-ninth annual Report of this Society shows that the Society now numbers 104 members, consisting of eleven honorary members, forty-six full members, thirteen associates, twenty-one assistants, and thirteen pupil members. The very excellent address given by the President, Mr. S. Perkins Pick, on September 19, 1901, is given in full, and contains much advice that is well worth the attention of young architects. The Report is accompanied by some measured drawings of old buildings in Leicester. In type and make-up it is a model pamphlet of its kind.

EDINBURGH ARCHITECTURAL ASSOCIATION.—On Saturday last week the members of the Edinburgh Architectural Association visited the Broch of Tappoch, situated on the summit of the Torwood, about three miles north of Larbert. It is one of the few existing in the south, their chief locality being the four northern counties of Scotland, where they exist in some hundreds, while in the southern counties there are only about six or eight. The Tappoch is one of the strongest of the brochs, having walls about 22 ft. thick, and an external diameter of about 80 ft., and its ground floor is absolutely of solid masonry, while it was surrounded by two strong walls, of which considerable remains still exist. All knowledge of this ancient structure was lost till about forty years ago, when its ruins, then a grassy mound, were explored and laid open to view. The period of the erection of the brochs has been assigned to the four or five centuries following the withdrawal of the Roman troops from Britain. After spending nearly an hour at the Tappoch, the party proceeded across the fields to visit the ancient castle of Torwoodhead, built by the Baillies, descended from the Baillies of Castlecary, in 1566, as is shown by the figures on a finely carved stone found in one of the field dykes. The castle is a very pleasing example of the kind of house erected by a Scottish laird four or five centuries ago, and would even yet, with a few alterations and improvements, make a most charming residence.—*Scotsman.*

LONDON BUILDING ACT, 1894:

TRIBUNAL OF APPEAL CASE.

THE Tribunal of Appeal under the London Building Act, 1894, sat at the Surveyors' Institution, Westminster, on Tuesday, to hear an appeal by Mr. A. Cameron Corbett, M.P., under Sections 9 and 19 of the Act, against an order of the London County Council, dated March 25, refusing to sanction the formation or laying out of a street for carriage traffic in continuance of Westmount-road, Eltham Park, Eltham, and in connexion therewith the abandonment of the formation of a portion of Westmount-road, as sanctioned by the Council on October 10, 1899. The members of the Tribunal present were Messrs. J. W. Penfold (Chairman), A. A. Hudson, and E. A. Gruning.

Mr. Cunningham Glen and Mr. Bethune were for the appellants, and Mr. Andrews for the respondents.

The case for the appellants, as outlined by Mr. Glen, showed that Mr. Cameron Corbett is the owner of the fees simple of an estate known as the Eltham Park Estate, Eltham, which estate he is gradually developing for building purposes. Upon such estate is a public carriage road or street, formed and laid out for carriage traffic, known as Westmount-road, and upon land adjoining the estate of which the appellant is the owner is another street, which it was contended had been formed and laid out for carriage traffic. In February last, the appellant, through Mr. Stewart, applied to the London County Council for their sanction to lay out a new street upon the appellant's land, to be 50 ft. wide throughout, and which would directly communicate at its southern end with Westmount-road, and at its northern end with the other unnamed street on the appellant's land. The extension of Westmount-road to the Woolwich-road in the manner proposed by the new street would, it was urged, provide the occupiers of the houses on the Eltham Park Estate with a means of access to Woolwich, where the majority of such occupiers are employed. The grounds of the appeal were—first, that the proposed new street would, at and from the time of its forming and laying out, afford direct communication between two streets formed and laid out for carriage traffic; secondly, that if the new street would not afford such communication, it was nevertheless unreasonable on the part of the respondents to withhold their sanction to the formation and laying out of the new street.

For the respondent, it was contended that the new street would not afford direct communication between two streets formed and laid out for carriage traffic. Mr. Andrews urged that the unnamed street which the appellant relied upon as forming the connexion was not a public thoroughfare, but a mere right of way.

After hearing evidence and investigating plans, the Tribunal dismissed the appeal, with three guineas costs.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Mr. M'Dougall, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend Woolwich Borough Council 4,280*l.* for additional plant in connexion with dust destructor; and 1,090*l.* for street improvement and erection of mortuary; Battersea Borough Council, 1,460*l.* for sewerage works; Hammersmith Borough Council, 6,000*l.* for erection of working-class dwellings; Poplar and Stepney Sick Asylum District Managers, 15,300*l.* for buildings and electric light; Guardians of St. Olave's Union, 17,280*l.* for works at workhouse; and Guardians of St. George's Union, 27,700*l.* for various purposes.

Housing: Rye and Sandwich Buildings.—The Housing of the Working Classes Committee reported as follows, the recommendation being agreed to:—

"On July 30, 1901, the Council authorised our chairman (Mr. Waterlow) during the summer recess to accept the lowest satisfactory tender for the erection of a portion of Winchelsea-buildings, Swan-lane site, for the accommodation of persons to be displaced by the construction of the Rotherhithe and Ratcliff tunnel. In pursuance of this authority our chairman accepted the tender of Messrs. Holloway Brothers, amounting to 8,122*l.* (including the comb-graining of internal wood work), and on October 8, 1901, we reported this fact to the Council. Winchelsea-buildings will provide accommodation for 200 persons. The plans of two further blocks of buildings to be erected on the Swan-lane site (Rye and Sandwich Buildings) have now been prepared and have received the approval of the Secretary of State. These buildings will provide accommodation for a further 400 persons in forty tenements of two rooms and forty tenements of three rooms, and the plans are exactly similar to those of Winchelsea-buildings. It is important that the work of erecting these dwellings should be proceeded with as rapidly as possible, so that the accommodation may be available before displacements are actually made in connexion with the tunnel

works. The architect advised us that it was unlikely that better terms would be obtained for the erection of these buildings than those on which Messrs. Holloway Brothers had undertaken the erection of Winchelsea-buildings. We therefore entered into communication with Messrs. Holloway with a view to ascertaining whether they would be prepared to undertake the erection of the dwellings at the same schedule of prices as that contained in their contract for Winchelsea-buildings. The architect has now submitted to us bills of quantities priced by Messrs. Holloway, and that firm have intimated their willingness to build Rye and Sandwich buildings for a sum of 8,021*l.* for each block, or 16,042*l.* in all, or including the comb-graining of the internal woodwork, 16,184*l.* This is a reduction on the tender for Winchelsea-buildings of 30*l.* for each block of buildings. The architect's estimate of the total cost of the buildings amounts to 16,750*l.*, including 460*l.* for architect's expenses, supervision, quantity surveyor's and other fees and incidentals. We recommend :—(*a*) That the estimate of 16,750*l.*, submitted by the Finance Committee, in respect of the erection of Rye and Sandwich buildings, Swan-lane site, for the accommodation of persons to be displaced by the construction of the Rotherhithe and Ratcliff tunnel, be approved. (*b*) That the offer of Messrs. Holloway Bros. to erect Rye and Sandwich buildings for a sum of 16,184*l.* be accepted. . . ."

It was also agreed, on the recommendation of the Parliamentary Committee, that that Committee be instructed to seek powers in the present session of Parliament to enable the sum of 50,000*l.* to be charged to the cost of carrying out the Westminster improvement, in respect of providing re-housing accommodation on the Millbank estate for persons of the working class displaced in connexion with the improvement.

New Technical Institutes.—The Technical Education Board reported as follows :—

"We are glad to report that the plans for the proposed new institutes at Poplar and Brixton belonging to the Council have at last been completed. The drawings, specification, and bill of quantities for the Brixton building have been referred to the Works Committee. The plans and specification for the Poplar building are now in the hands of the quantity surveyors. The exact scheme of work at each of these institutes is under consideration, but we may say it is contemplated to make the L.C.C. Brixton Technical Institute a centre for practical instruction in the various branches of the building trades, especially in such branches as require more room than can usually be assigned in a polytechnic. The L.C.C Poplar Technical Institute is intended to serve chiefly the needs of a district largely devoted to engineering in its several branches, and to the mercantile marine. We hope that both institutes may begin work in October, 1903."

List of Rates of Wages and Hours of Labour.—The Works Committee reported as follows, the recommendation being agreed to :—

"The Council's list of rates and wages and hours of labour requires revision as regards the rate of pay for overtime for wood-sawyers and wood-working machinists, so as to make it agree with the overtime rates included in the revised working rules for those trades. We recommend that the rate of pay for overtime for wood-sawyers and wood-working machinists in the Council's list of rates of wages and hours of labour be amended as follows :—From 6 p.m. to 10 p.m., time and a-quarter ; after 10 p.m., double time ; Saturdays, noon to 4 p.m., time and a-half ; Saturdays, after 4 p.m., and Sundays, double time."

Means of Escape in Case of Fire from Factories, Workshops, &c.—The Building Act Committee reported that :—

"The Council on December 10, 1901, gave authority for the employment, until the annual revision of salaries, 1902, of three additional surveyors on the unestablished staff in the factory and workshop branch of the Architect's department for the purpose of expediting the progress of the work of seeing that factories and workshops are provided with proper means of escape in case of fire. In view of the approaching termination of the period for which the employment of these three surveyors is authorised we think it desirable to report the progress that has been made in the work on which they are engeged. Shortly after the passing of the Factory and Workshop Act, 1891, a list was received from the Home Office of 1,376 factories which it was thought necessary the Council should inspect, with a view to ascertaining whether any, and if so, what requirements should be made in respect of the provision of means of escape in case of fire. In addition to this number there had been notified up to March 25, 1901, 442 other cases, making a total at that date of 1,818 cases. Of this number, 798 had then been, or were being, dealt with, leaving the very large number of 1,020 cases to be inquired into. Having regard to the serious responsibility devolving upon the Council in this matter, the Building Act Committee in October, 1901, considered what steps could be taken to hasten the completion of the work, and to ensure that the more serious cases should be dealt with as quickly as possible. With this object it was thought desirable to have a preliminary survey made of all cases on the Home Office lists that had not been dealt with, and with the information thus obtained to classify them under three heads, viz. (1) 'dangerous cases ;' (2) 'cases requiring early attention ;' (3) 'cases not immediately urgent.' The services of the three surveyors whose employment was authorised by the Council on December 10, 1901, were therefore utilised for this work, and a beginning was made by dealing with the cases in the City district. Of these all on the original Home Office list, together with a few additional cases subsequently reported, have been inspected, with the result that out of a total of 212 cases sixty have been classed as 'dangerous,' thirty-six as 'requiring early attention,' and seven as 'not immediately urgent.' In 109 cases it was found that the premises did not come within the scope of Section 14 of the Factory and Workshops Act, 1901. Of these, ninety-one cases may be taken off the list of places to be dealt with, but eighteen will require to be watched. There still remain 816 cases to be inspected with a view to classification, 613 of these being cases on the original Home Office list, and 203 being cases outstanding from those subsequently notified to the Council. The time spent on the classification of the 212 cases in the City district has been seven weeks, the inspections having actually commenced on February 18 and finished on April 11, 1902. It is anticipated that a considerably faster rate of progress will be attained as the result of the experience that the officers engaged on the work have acquired, but in order to complete the classification and make good progress with the work of dealing with the urgent cases, we are of opinion that the services of the three temporary surveyors at present engaged on the work should be retained for at least a further period of six months from the revision of salaries, 1902, and we have sent a memorandum to the Establishment Committee to this effect."

Tenders.—It was agreed to accept the tender of Messrs. Mayoh & Haley (1,255*l.* 5*s.* 6*d.*) for constructing camp sheeting and a grid at Pageant's Wharf, Rotherhithe.

The tender of Messrs. J. G. White & Co. was accepted, at prices set out in the schedule, for laying stoneware ducts for electric cables in connexion with the reconstruction of the Council tramway between Westminster and Tooting.

It was also agreed to accept the respective tenders of Messrs. Seimens, Bros., & Co. (31,743*l.* 17*s.* 6*d.*) and the British Insulated Wire Co. (49,499*l.* 12*s.* 6*d.*) for the supply, delivery, and laying of (*a*) the high-tension cables and (*b*) the low-tension cables required in connexion with the reconstruction, for electrical traction, of the Council tramways.

Tramways.—The following recommendation of the Highways Committee was agreed to :—

"That the supplemental estimate for 11,000*l.*, submitted by the Finance Committee, be approved ; and that the expenditure be authorised of that sum, in addition to that of 70,000*l.*, authorised by the Council on February 25, 1902, on the recommendation of the General Purposes Committee, for the acquisition, for the sum of 80,000*l.*, by the Council, as a site for an electricity generating station in connexion with its tramways, of the Gas Light and Coke Co.'s interests in the property known as the Pimlico Gasworks, as offered for sale by auction on February 27, 1902."

Housing, Poplar. — The following recommendation of the Housing of the Working Classes Committee was agreed to :—

"That the tender of Mr. J. O. Richardson, amounting to 13,720*l.*, for the erection of Ottawa and Baffin-buildings, Preston's-road site, Poplar, be accepted ; that the offer of Mr. J. O. Richardson to build the remaining four blocks of buildings on the Preston's-road site at a reduction for all six blocks of 5 per cent. on the prices contained in his tender for the erection of Ottawa and Baffin-buildings be accepted. . . . ."

The Council adjourned at seven o'clock.

A PHOTOGRAPHIC SURVEY OF SURREY.—A provisional Committee has been formed for the purpose of carrying out a photographic survey of the county of Surrey, with the object of taking and preserving permanent photographs of the scenery, geology and natural history, antiquities, buildings, streets, social life, and public events of the Surrey of to-day, as well as the reproduction of old prints, maps, and records of the Surrey of the past. The value and interest of such a record cannot be questioned, especially in the case of Surrey, than which no county is changing more rapidly, and in none, therefore, is the need for such a survey more urgent. A meeting was announced to be held in the lecture-room of the Central Public Library, Town Hall, Croydon (by permission of the Libraries Committee), on Friday, May 9, at 8 p.m., to consider the best means of carrying out this scheme, to which we wish every success.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Whitechapel.—A one-story addition, at the first floor level, at the rear of the Crown and Seven Stars public-house, Royal Mint-street, Whitechapel (Messrs. Shoebridge & Rising for Mrs. A. Vinall).—Consent.

Lines of Frontage and Projections.

Norwood.†—Houses on the northern side of St. Louis-road, Auckland-hill, West Norwood, between St. Bernard's-road and St. Gothard's-road (Mr. R. Pippette).—Consent.

Clapham.—Wood and slate porches at the entrances to six semi-detached houses on the north-west side of Rodenhurst-road, Clapham Park (Messrs. Douglas Young & Co.).—Consent.

Greenwich.—That the application of Messrs. Johnson & Phillips for an extension of the period within which the erection of a one-story addition to the Electric Cable Works, Victoria-road, Charlton, was required to be commenced, be granted.—Agreed.

Greenwich.—A one-story shop on part of the forecourt of No. 491, Woolwich-road (formerly known as No. 1, Anchor-terrace), Greenwich (Mr. E. E. Wood for Mrs. E. Mills).—Consent.

Hampstead.—Bay-windows to three houses on the eastern side of Finchley-road and six houses on the north-west side of Platt's-lane, Hampstead (Mr. C. H. B. Quennell for Mr. G. W. Hart).—Consent.

Lewisham.—A house, with a shop on the ground floor, on the east side of Ardgowan-road, Hither-green, Lewisham, to abut upon Dowanhill-road (Mr. A. C. Baker for Mr. J. Horwood).—Consent.

Wandsworth.†—A one-story shop on the south-eastern side of Streatham-hill, Streatham, at the corner of Leigham-court-road (Mr. C. M. Quilter for Messrs. Willoughby & Co).—Consent.

Westminster.†—A stone portico in front of Stafford-mansions, on the east side of Stafford-place, Buckingham-gate (Mr. G. H. Gordon) —Consent.

Battersea.—A temporary one-story addition to the hospital, Prince of Wales-road, Battersea, to abut upon Albert Bridge-road (Mr. A. Parnacott for the Trustees and Board of Management of the National Anti-vivisection Hospital).—Refused.

Lewisham.†—A house, with a shop on the ground floor, on the north side of Sydenham-road, Lewisham, to abut upon Sunnydene-street (Mr. E. W. Evans).—Refused.

Strand.—That the request of Mr. J. E. Chevers for permission to retain for a further period an iron and glass sign at the Savoy Palace public-house, Savoy-street, Strand, extending beyond the general line of buildings in that street be not acceded to.—Agreed.

Strand.†—A steel and glass shelter at the entrance to the buffet and grillroom at the Grand Hotel, Charing-cross, to overhang the footway of the Strand (Mr. W. Woodward for the Gordon Hotels, Ltd.).—Refused.

City.†—An oriel window at the Cripplegate Institute, Golden-lane, to abut upon Brackley-street (Mr. F. S. Hammond for the Governors of the Cripplegate Foundation).—Refused.

Width of Way.

Westminster.—Retention of a portion of a new building erected on the site of No. 7, St. Ann-street, Westminster, upon part of St. Ann-court (Mr. E. Dru Drury for Mr. J. S. Burroughes).—Consent.

Greenwich.—Two-story cottages on the north side of Trevithick-street, Watergate-street, Deptford (Mr. D. Young).—Consent.

Rotherhithe.—A building at Bellamy's Wharf, Rotherhithe-street, Rotherhithe (Mr. W. Burrell for the United Kingdom Temperance and General Provident Institution).—Consent.

St. George-in-the-East.—A two-story workshop building, on the site of Nos. 15A, 17, and 19, Great Hermitage-street, Wapping (Mr. J. Parrish for Mr. A. W. Birt).—Consent.

Width of Way and Line of Frontage.

Kensington, South.—A four-story addition at No. 39, Victoria-road, South Kensington, to abut upon St. Alban's-road (Messrs. C. Saunders & Son for Mr. J. C. Eno).—Refused.

Line of Frontage and Construction of Building.

Hackney, Central.—A play-shed in the boys' playground of the Enfield-road Schools, Kingsland, to abut upon Hertford-road (Mr. T. J. Bailey for the School Board for London).—Refused.

Formation of Streets.

Battersea.—An extension of the period within which the roadways of new streets on the north side of Sheepcote-lane, Battersea, were required to be clearly defined throughout by posts and rails, or so otherwise as the Council might permit, and be thrown open to the public as highways, be granted (Mr. W. M. Wilkins, for the Council of the Borough of Battersea).—Consent.

Kensington, South.—That an order be issued to Messrs. Rolfe & Matthews, sanctioning the forma-

tion or laying out of two new streets for foot traffic only, to lead from Addison-road to Abbotsbury-road, Kensington (for Messrs. Jones Bros.).—Agreed.

Clapham.—A deviation from the plan sanctioned for the formation of three streets on the Springwell Estate, Clapham Common, so far as relates to a diminution in the width of a portion of Meteor-street, near its southern end (Mr. J. Stanbury).—Refused.

Buildings for the Supply of Electricity.

Marylebone, East.—The steelwork of part of an electricity generating station in course of erection on a site on the east side of Grove-road, Marylebone, between the Regent's Canal and Lodge-place (Mr. C. S. Peach for the Central Electric Supply Co., Ltd.).—Consent.

Wandsworth.—A two-story addition to the generating station on the south side of The Causeway, Wandsworth (Mr. C. Thompson for the County of London and Brush Provincial Electric Lighting Co., Ltd.).—Consent.

*** *The recommendations marked † are contrary to the views of the local authorities.*

THE SURVEYORS' INSTITUTION.

A GENERAL meeting of members was held on Monday, the 28th ult., for the purpose of confirming six resolutions duly submitted to, and passed by, a previous general meeting held on Monday, the 14th ult.

In the result the meeting confirmed the Resolutions II., III., IV., V., VI., but decided that the confirmation of Resolution I., relating to the title "Chartered Surveyor," be not submitted to the meeting, and that the question involved in this resolution remain in abeyance until steps had been taken for ascertaining, by means of a circular letter, the views of all the members throughout the country.

The next ordinary general meeting will be held at the Guildhall, Cambridge, on Thursday, May 22, at 10 a.m.

PROFESSIONAL EXAMINATIONS, 1902.

The following Student Candidates have passed the examination for the Professional Associateship :—

L. H. Allen, London; C. E. Amoore, Streatham; §A. W. Ashton, Oswestry; R. H. Barclay, Clapham; J. D. Bastable, Morecambe; C. J. Berry, Wandsworth Common; F. E. Blunt, Liverpool; †B. A. Boyton, Old Fulham; R. W. Brealey, Leek; S. L. Broad, Woolwich; C. V. Chilwell, London; H. F. Cobb, Higham, Kent; R. H. Coker, London; H. C. Cole, London; J. B. Densham, Purley; C. H. Dinwiddy, London; C. H. Donne, Bury St. Edmunds; F. A. Drake, Woking; C. J. Elgar, Dover; F. Fletcher, London; C. G. French, London; P. F. Gleed, London; H. Hanson, Huddersfield; R. V. Heathcott, Chapel-en-le-Frith; R. C. Holbeche, Birmingham; H. How, London; G. P. Inaley, Bournemouth; R. S. Jackson, Sittingbourne; F. W. Jeffery, Hastings; R. C. Jonas, London; L. N. Knox, London; F. B. Lang, Plymouth; R. B. Lees, Congleton; M. L. Lyon, London; *E. Meacher, Salisbury; C. P. Moss, London; P. W. Mullins, London; J. Murtough, Portsea; F. I. Neame, Faversham; A. D. Orchard, Ashby-de-la-Zouche; H. B. Owen, Newcastle, Staffs; M. H. D. Parsons, Exeter; W. H. M. Pattison, Witham; H. W. Pavitt, London; D. W. Perkin, Tavistock; H. de L. Reany, London; C. C. Reed, Driffield; H. T. Richardson, London; A. H. Rippengal, Croydon; W. S. V. Sansom, Colchester; L. E. Shone, Whitchurch, Salop; C. H. Smith, Calne, Wiltshire; S. A. Smith, Monkseaton; E. C. Steere, Richmond; W. C. Symes, London; V. A. Taylor, Croydon; E. T. Taylor, Lytham; H. G. Tidey, London; S. G. Turner, London; W. A. Walker, Long Ashton; E. J. Ward, London; A. H. Wells, Ashby-de-la-Zouch; F. C. Wheeler, London; A. V. White, Portsmouth; H. W. Witton, Towcester; J. L. Whytehead, Warminster; C. A. Young, London; H. O. Young, Rock Ferry; J. G. Wood, Warlingham.

The following non-student candidates have also passed the Examination for the Professional Associateship :—

G. M. Adams, London; H. C. Amies, Exeter; J. H. J. Appleby, Fareham; W. H. Bamford, London; J. J. Banks, Kendal; H. F. Berry, Southend-on-Sea; C. G. Blore, Canterbury; H. J. Boazman, Penrith; C. V. Boulton, London; H. C. Bradshaw, Eye; F. H. Bramley, Sheffield; C. H. Brown, Walton-on-Thames; J. C. Brown, Kendal; W. H. Brown, London; J. Burnett, Atherstone; W. E. Candy, Wareham; A. B. Carr, Bramall Park, near Stockport; A. W. Champernowne, Totnes; J. Chandler, Edenbridge; E. S. D. Cocke, London; P. Crabtree, Mytholmroyd; L. W. David, Llandaff; A. J. Dawkins, London; A. C. Driver, London; E. G. Drower, London; M. C. Duchesne, Slough; S. Fitch, High Wycombe; C. J. Fowler, London; K. G. Gairdner, London; J. J. Gillies, Carlisle; R. H. Goodchild, East Dereham; A. T. Groves, London; F. E. Hale, Salisbury; ‡J. T. C. Hazledine, Shrewsbury; J. L. Heath, Newbury, Berks; F. G. Hennell, London; P. W. Home, London; E. A. Huskinson, Epperstone, Notts; H. H. James, Fen Ditton, Cambridgeshire; A. F. Johnstone, Eastbourne; A. E. Jones, Newcastle, Staffordshire; J. R. Jones, Swansea; R. C. Jull, Tunbridge Wells; J. D. Keele, London; A. J. Lambert, London; R. S. Lander, London; H. N. S. Langton, B.A., London; C. P. Lawrence, Nuneaton; A. P. Lunn, Pontefract; W. V. Lush, Croydon; T. E. Marks, Keighley; G. E. Marshall, Sheffield; H. W. Mason, Barnes; P. T. Maw, Nutfield; P. J. May, Saxmundham; W. F. Merritt, Blackheath; P. Millar, Southampton; H. J. Moody, Folkestone; D. W. Morse, London; J. N. Neill, Leeds; B. Newman, London; C. R. K. Newington, Lewes; S. Parkhouse, London; H. Parkinson, London; A. E. Parry, London; T. G. Pearson, Barrow-in-Furness; G. F. J. Peters, Great Bookham; H. E. Pollock-Hodsole, Hollesley Bay; H. Pritchard, Cardiff; F. W. Randell, Swansea; B. A. Rhodes, Kirkburton, near Huddersfield; H. Richardson, London; G. W. Ruddle, London; W. C. Sainsbury, London; I. Sanders, Southampton; E. Simm, Osbaldistone, near Blackburn; A. J. Slater, Ipswich; W. Smalley, London; A. K. Smith, London; A. T. Smith, Bradford; C. P. Smith, London; F. E. Spalding, London; O. F. Stenning, London; J. E. H. Stooke, Hereford; P. J. Symmons, London; E. F. Terry, Ashstead; P. H. Thomas, London; R. W. Thomas, Exeter; L. Tysoe, Richmond; A. C. Vickers, London; E. W. Watt, Hollesley Bay; A. R. Watts, Edenbridge; R. R. Waugh, Hollesley Bay; H. Whitaker, Farnham; A. Whittington-Cooper, London; C. Wilks, London; F. W. Williams, Wallington; F. Willoughby, Merstham; C. Worden, Plymouth; A. E. Wright, Kingston-on-Thames.

Scottish Candidates.

T. Canch, St. Andrews; D. McLean, jun., Golspie, Sutherlandshire; G. W. Orr, Kilmarnock.

The following Professional Associates have passed the Fellowship Examination in Division IV. :—

W. R. Baldwin-Wiseman, Chorlton-cum-Hardy; G. Beken, Jun., London; W. R. Bingham, Richmond; T. S. Bliss, Bicester; H. Bowden, London; H. C. Brierley, Troy, Mon.; F. Brown, London; S. J. Chesterton, London; L. E. Clarke, Falfield, Gloucestershire; R. Cobb, Higham, near Rochester; C. N. Cook, London; G. A. Cooper, London; J. R. Corbett, Manchester; G. E. Cragg, Manchester; J. G. M. Davies, Preston; R. H. A. Delves, Dublin; R. A. E. Every-Clayton, Hanley Castle, Worcester; A. C. S. Fowler, Chingford; E. Fox, Bournemouth; R. F. L. Freeman, Ramsgate; W. Hider, London; E. R. Hinchcliff, Barry, Glam.; M. P. Holmes, London; H. C. Hood, London; P. R. Hopkins, London; M. Hoskins, Swansea; A. F. Howland, Amersham; J. W. Humphreys-Davies, London; A. R. Kelly, London; W. F. Langridge, Tunbridge Wells; H. Lisney, London; A. W. H. Loveless, London; H. D. Lynes, Corwen, N. Wales; A. W. Martin, London; D. B. Maxwell, Ipswich; S. G. Meacher, Collingham, near Newark; S. A. Parnwell, London; J. S. Petch, Leyburn; A. E. Petter, Bristol; F. W. H. Pinsent, London; G. Pinson, Birmingham; G. L. Pottier, Walthamstow; S. L. Sandell, Bromley; J. K. Stephens, Holywood, co. Down; E. R. Stoneham, Erith; A. E. Terry, London; A. F. A. Trehearne, London; F. M. L. Walsh, London; T. J. Walter, Bournemouth; H. P. Ward, Redhill; G. F. Weatherill, Otley; H. S. Webber, Maidenhead; A. S. West, London; ¶‖M. L. Wheldon, York; G. J. Whitten, Tenby; E. J. Wilson, London; W. B. Wright, London; A. Wyatt, Portchester.

Scottish Candidate.

J. C. Peace, Falkirk.

The following candidates have passed the direct Fellowship Examination in Division V. :—

S. Coope, Farnworth, Lancashire; A. J. Cooper, Curragh Camp, Kildare; J. W. V. Hibbert, London; R. H. Thorp, Hull.

Eight candidates not included in the above list passed the examination in Divisions II. and III. as a whole, but failed in their typical subject.

Sixteen candidates who passed the examination as a whole in Divisions IV. and V., also failed to pass their typical subject.

Eight out of thirty-nine candidates in the various divisions who came up for re-examination in their typical subject have failed again this year.

* Institution Prize. † Special Prize. § Beadel Prize.
‡ Driver Prize and Penfold Silver Medal.
¶ Penfold Gold Medal. ‖ Crawter Prize.

TRADE CATALOGUES.

MESSRS. G. & T. EARLE, of Hull, send us a pamphlet describing the standard methods of testing cement adopted in the testing-rooms in connexion with their works. After details of the tests adopted, we find a few pages setting forth the various pitfalls besetting the path of the inexperienced investigator. A good deal of useful and interesting information is given in the book, which is quite worthy of a permanent place on the bookshelf of the architect's office.

Messrs. Adams & Co. send us their 1901 catalogue of sanitary fittings, &c. It is well printed, and contains upwards of a hundred excellent illustrations (reproduced from photographs) of baths, lavatories, sinks, single and multiple water-closets, urinals, flush-tanks, disconnecting and intercepting traps, and other sanitary apparatus. A word of praise must be given to this firm for the artistic character of the designs for lavatories, closets and other fittings. Printed ornament is conspicuous by its absence. The pottery is plain glazed, but a certain amount of distinction is obtained by graceful outlines and by simple broadly-designed conventional patterns in very low relief. Among the novelties we notice some divisions for closet-compartments; these have cast-iron pillars, grooved to receive marble, slate or "opaline" slabs, and are supplied with or without dwarf wood doors. Water-closets form an important part of the catalogue, and include single closets and latrines of various kinds; wash-out and valve closets, are not shown, and this elimination of obsolete and obsolescent apparatus is a commendable feature. The "Insular" enclosed tip-up lavatory deserves mention; it is made entirely of glazed "titanite," and is in shape very similar to a pedestal water-closet; other lavatories have standing wastes and overflows placed in recesses at the back of the basins, so that every part can be easily cleaned. We cannot notice all the interesting fittings illustrated, but may say that nearly all bear evidence of careful thought and intelligent design. The catalogue is one to keep and use.

We have received from Messrs. John Bolding & Sons their apparently-new but undated catalogue of sanitary fittings, drainage apparatus, and plumbers' goods. Valve-closets occupy the place of honour, and are followed by siphonic and wash-down closets of various kinds, some having lead traps. A good assortment of closet-cisterns is shown. Among the lavatories are some interesting examples, such as the independent hexagonal marble lavatory with six basins, but the illustrations scarcely do justice to the fittings; all the overflows appear to be of the secret standing-waste type, or the ordinary porcelain grate. The woodwork of some of the cabinet lavatories is fussy and inappropriate, and the cast-iron standard lavatories with mirrors are extremely ugly. A special feature is made of copper baths for houses and hospitals, but there is nothing particularly novel. Among the other contents are sinks for houses and hospitals, slop-sinks, "urinettes" for women's use in public conveniences, water taps, steam fittings, pumps, lead traps, dustbins and shoots, and rainwater goods. The drainage section contains some good grease traps of the flushing-rim type, and a valuable series of illustrations on cast-iron drainage. The manhole-channels and many of the stoneware and iron gullies are also well adapted for their purpose. The catalogue is of the ordinary trade kind, but will prove useful as a work of reference for architects and plumbers. It is furnished with a complete index, and is well printed.

A catalogue of a much more heterogeneous character is that of Messrs. O'Brien, Thomas, & Co. It is divided into three parts. The first part (containing 492 pages) includes stoves, fire-grates, mantels, and cooking ranges; the second (272 pages) deals with "sanitary goods," "rain-water goods," stable fittings, railings, and gates, and "builders' sundries"; and the third (280 pages) comprises ironmongery, brass foundry, bells, workmen's tools, paints, varnishes, &c. In all these pages it would be strange if something of interest could not be found. Among the mantel-registers and chimney-pieces are some good designs, but they are almost lost in the crowd of bad and indifferent specimens. How is it that ironfounders are content with such a low standard of design? Their one desire appears to be to cover every square inch with ornament, however debased or meaningless it may be. It is only fair to say, however,

that in many cases the illustrations in this catalogue are more like caricatures than true representations. The sanitary fittings are, almost without exception, of commonplace character. In the section on builders' ironmongery no fewer than twenty-three pages are devoted to descriptions and illustrations of the "Coburn" patent door-hangers—a meritorious American invention for sliding-doors and partitions. Space would fail us to mention even a tithe of the articles illustrated in this catalogue. Suffice it to say that there are few fittings required in a building of which some examples cannot be found within its covers, but it is a trade catalogue of ordinary type, suitable perhaps for the firm's purpose, but entirely lacking in distinction.

Messrs. Mark Fawcett & Co. send us a handsomely got-up pamphlet containing photographic views of buildings in the United States, most of them of a high-class and by good architects, in which the Fawcett fireproof floor has been used. It forms a testimony to the favour which this floor, made by an English firm, is finding in America.

The Woolpit Brick Company (Woolpit, Suffolk) send an illustrated catalogue of their red and white moulded and ornamental bricks. The ornamental designs are not quite what would satisfy architects, though some of them may work in effectively as diapers. The moulded bricks show good and effective mouldings in considerable variety.

The Medmenham Pottery send us a pamphlet containing a description and illustrations of their decorative work in pottery and tiles, which is carried out under the direction of Mr. Conrad Dressler, whose name is in itself a guarantee that this is a pottery for carrying out really artistic work. The following quotation from their pamphlet may best explain their system and the objects they keep in view :—

"The Medmenham Pottery was founded with the object of producing architectural pottery and tiles possessing individuality in design and execution. We have felt that, in order to reach this aim, we must place ourselves in conditions approximating those of the old potteries whose ware delighted and inspired us. We therefore established our pottery right away in the country. We use our Marlow materials as much as possible and employ village workpeople. These elements are allowed to influence our work to the fullest possible extent.

Our tiles are made in two ways, either in plastic clay, entirely by hand, or pressed in a more mechanical fashion. In both cases, however, the same patterns and the same methods of colouring by hand are used. The plastic tile, although having more the effect of old work, is not so suitable to modern conditions, which demand greater correctness of form and exactness of size. Architects can have which they like."

The tiles being all made in multiples of the square inch, there is no difficulty in making up various designs from the separate elements. The designs shown in the catalogue are all of good and artistic character. Architects' own designs can be carried out at a slightly increased rate. The Potteries are situated about a mile and a half from Marlow, and the proprietors invite the visits of architects and others who may be in the neighbourhood.

Messrs. James Smith & Co., Timber Merchants, send a small pamphlet, useful chiefly to contractors, of their present stock of deals, battens, floorings, &c.

Messrs. A. J. Arrowsmith & Co. send us an illustrated catalogue of their moulded and carved wood chimneypieces, together with illustrations of other more elaborate work which they have carried out for various architects. We are glad to be able to give unqualified praise to this catalogue. The designs for chimneypieces are all in good taste and appear to be very well executed; the illustrations are also exceedingly artistic in style. It is not often that we receive a catalogue of artistic furniture which is so satisfactory as this.

Messrs. Hughes & Stirling, of London and Liverpool, send us a pamphlet describing the "Stirling" refuse destructor, built under the patents of Mr. Liversedge, A.M.I.C.E. This particular type of destructor is a compound furnace having at least two cells, each with a drying hearth, while between the two is a supplementary chamber where combustion is completed and dust is deposited. An illustration in the pamphlet shows the new installation at Aston Manor, where the refuse is carried by a transporter to an overhead storage and charging shoot. This method of handling the material is largely automatic, and seems to be simple and cleanly.

Messrs. Mather & Platt, of Salford, sends us an illustrated prospectus of the Mather-Reynolds high-lift centrifugal pump, now in extensive use for mine, well, dock, fire, and irrigation purposes. The essential feature of this pump is that it consists of one or more sets of vanes, each in its own chamber. So the delivery pressure of the liquid varies directly as the number of chambers used. While the lift of an ordinary centrifugal pump does not exceed, say, 50 ft., the most recent form of this special type is capable of delivering water against a head of 200 ft. with a single chamber.

Messrs. Wallach Bros., of London, send us a price list of safety and labour-saving appliances, amongst which we notice a handy-looking whitewashing machine, also available for fire-extinguishing purposes in case of need. Steps for overhead shafting, with various safety devices, are also illustrated, these being appliances of a kind that might always be included in specifications relating to the mechanical equipment of hospital, laundries, and other places where shafting is used.

Messrs. Jacobs Brothers & Co. (London and Antwerp) send us their price-list of metals, window-glass, iron and steel rolled rods, rolled steel joists, steel wire, &c.

BOOKS RECEIVED.

THE DESIGN OF STRUCTURES. A Practical Treatise. By S. Anglin, C.E. Third edition. (Charles Griffin & Co.)

ANTIQUE WORKS OF ART FROM BENIN. Collected by Lieut.-General Pitt-Rivers. (Printed privately.)

Correspondence.

THE "LIGHT" QUESTION.

SIR,—In recent years probably no question has caused more annoyance, trouble, and expense to architects and their clients than that of "light." Building after building is brought to a standstill, and case after case comes into the law courts, without apparently any definite or precise rules being laid down. This is doubtless to the benefit of the legal profession, but much against the interests of the architectural profession, and as a matter of justice to the public certain rules ought to be laid down, which would at least minimise the evil. Special cases, of course, there must always be, which possibly no written rules could or would cover, but many of the ordinary cases cropping up might absolutely be avoided if certain definite and common-sense rules were made, and recognised as binding.

For instance, there should be no great difficulty in laying down a fixed law that if a street is a certain width the owners on both sides are entitled to build up to a certain height proportionate to the width of the street, without let or hindrance. If this was recognised in law, every owner of land or old buildings in such a street would know precisely how high he was absolutely entitled to build without let or hindrance. If the width of the street allowed for a legal height of, say, 40 ft., no action could then be brought against any owner building up to this height, even if a pre-existing building had only been 15 ft. high, or the ground had previously been unbuilt upon. A definite law of this sort would at least save a lot of litigation which now takes place, and which ought not to be possible. Of course, it would not prevent a building being taken higher, when the right already exists, nor would it really limit the height of any other building; but it would at least be a starting point from which no exception could be taken by an opposite owner, and many disputes which are now possible would be rendered impossible.

In other words, such a law would be a step in the right direction, and might lead to other certain definements, and at least minimise the present uncertain condition of affairs. The great difficulty in getting a matter like this settled lies in the taking of the initiative. In Parliament there are few architects, but many lawyers, and the latter would, of course, have no interest in taking up the subject; but there are many architectural societies in England, and if they could be persuaded to take the matter up seriously and work it through, practical proof would be given that they are of some use both to the profession and to the public.

COMMON SENSE.

MEMORIAL TO THE LATE MR. JAMES BROOKS.—On the 2nd inst. three iron screens between the arches leading into the Lady Chapel, St. Faith's, Stoke Newington, were dedicated. These have been put up as a memorial to the late James Brooks, who was many years churchwarden of the church. They were designed by his son, Mr. J. Martin Brooks, Wellington-street, Strand.

The Student's Column.

PART II.—DRAINAGE.

CHAPTER 17.—SOME EXAMPLES OF DRAINAGE SCHEMES.

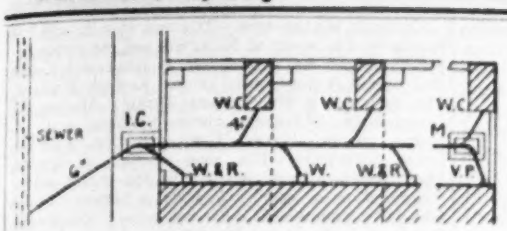
THERE is no stock pattern for drainage schemes. Buildings differ in size, arrangement, and purpose, and in their relative levels and positions with regard to the sewers, and the drains must also differ. A few typical examples may, however, be of service. It is impossible in the space at our disposal to give drawings to a large scale, but the illustrations will, it is hoped, show the general lines on which drains may be planned. As a rule, an architect is compelled to consider economy, but it is certainly an error of judgment to scamp the drains for the sake of a little pretentious ornament above ground. Drains ought always to be designed and constructed so as to be reasonably efficient, although, of course, the design and construction cannot in every case be of the best. The drains from farm buildings, for example, need not be so costly as those of a mansion. But economy ought not to be pushed beyond a certain limit. Building owners are gradually learning that a little additional money spent on drains is not only a good investment from a sanitary point of view, but is also cheaper in the end. The omission of manholes in a drainage system reduces the initial cost, but the first stoppage of the drain may entail an expenditure in excess of the original saving, and much annoyance besides.

Economy must be carefully studied in workmen's cottages. Two plans may be adopted. In the one, the drains of each house are distinct from those of the other houses, and have separate connexions with the sewer. In the other, a "combined" main drain receives the branches from a number of houses. The law relating to combined drains of this kind has already been stated, and Local Authorities are now alive to the fact that in certain cases such combined drains are technically "sewers," for the repair of which the authorities are liable. Provincial Authorities, which have not adopted Part III. of the P.H.A. Amendment Act, 1890, sometimes, therefore, refuse, in self-defence, to pass plans showing combined drains. The writer has had considerable difficulty in some cases in getting such plans approved.

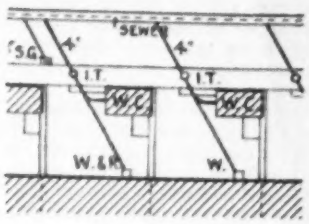
If the separate system is adopted each house-drain ought to be intercepted from the sewer by means of an intercepting trap, above which a pipe-shaft must be carried up and finished with an air-inlet grate at or above the surface of the ground. Unless there is an internal water-closet, the drain does not as a rule require any other ventilation. Where an internal water-closet is provided, the soil-pipe must be utilised as a ventilating shaft. The drains in this class of property are usually so short that more than one opening for air is unnecessary. Fig 80 shows this arrangement, W being the trapped sink-gully, W.C. the water-closet, and I.T. the intercepting trap and air-shaft; some authorities allow the trap to be placed under the footpath of the back street as shown, while others require it to be in the back yard of the house. The rainwater-pipes discharge over the sink gullies.

In fig. 81, a combined scheme of drainage for a row of cottages is shown; WW are the trapped sink gullies; W.C., W.C. the water-closets; I.C. the ventilated intercepting chamber and trap; M. an inspection-chamber at the head of the combined drain, fitted with an airtight cover; and V.P. a ventilating pipe carried up the wall of the house and terminated by a copper wire guard above the eaves or ridge. This arrangement is somewhat more costly than the other for a small number of houses, but it is more easily cleansed and more thoroughly ventilated. The intercepting chamber is placed under the footpath of the street, this position having been adopted by the writer in many cases and approved by the authorities. In some districts it must be placed in the back yard of the lowest house, and if this position is adopted it is better that the branch drain from the water-closet of that house should open directly into the chamber, and not be connected to the main drain.

In houses of this class the only drain inlets on the front of the building are, as a rule, from rainwater pipes. It is generally considered sufficient to disconnect these by means of suitable gully-traps, and to run the drains to the sewer without interception. A combined



81.



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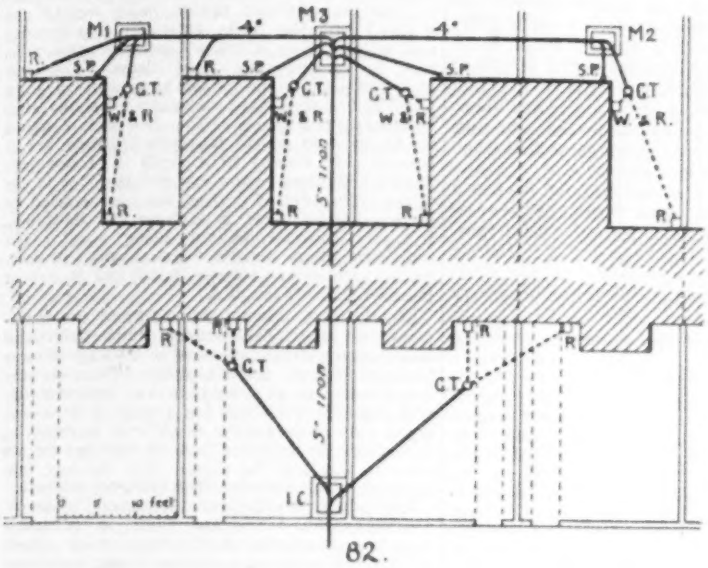

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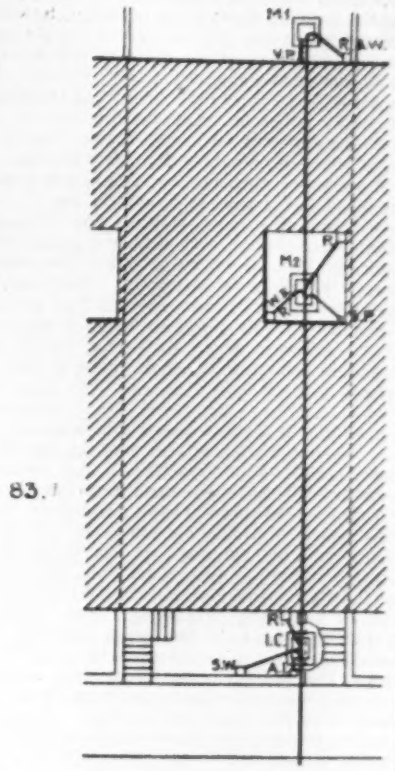
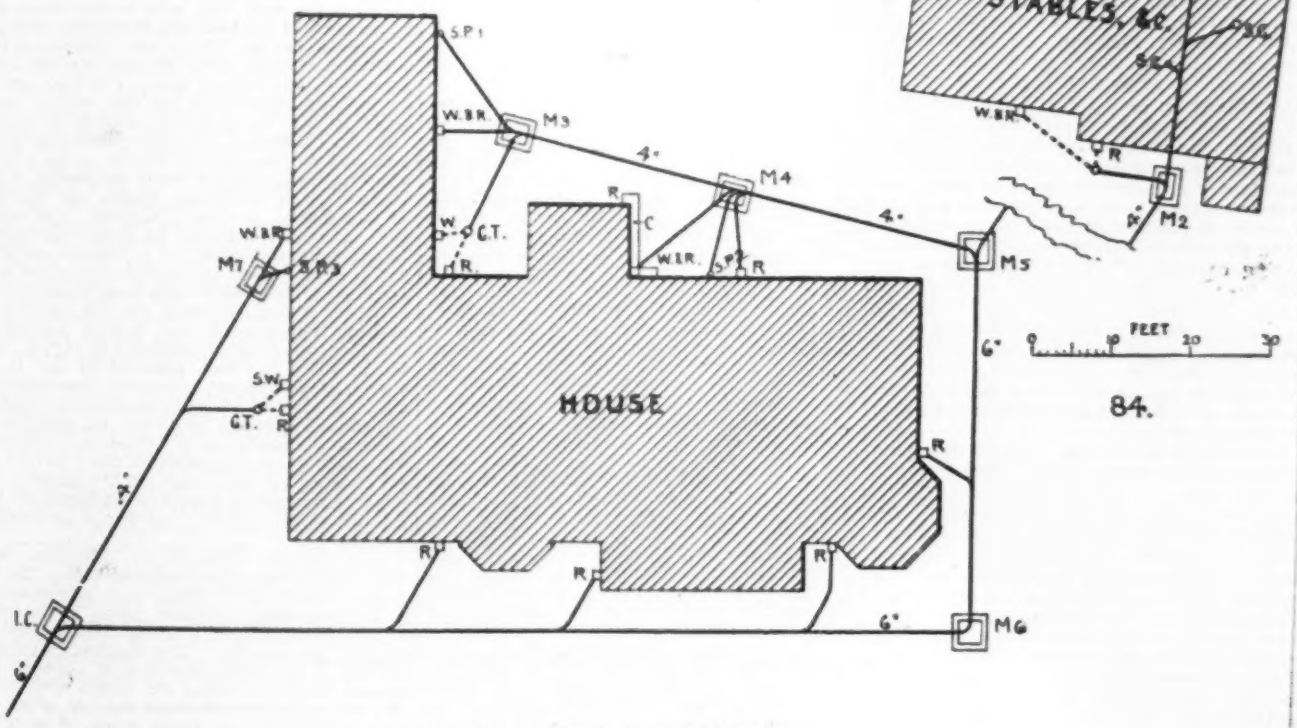


83.



84.

Illustrations to Student's Column.

drain is often more economical, an intercepting trap and air-shaft being fixed in it before its connexion with the sewer. Where the separate system of sewerage is adopted the rain-water drains from the front of the building must be connected to the surface-water sewer; those from the back are often, though not invariably, permitted to enter the sewage conduits.

In the case of a group of houses in the middle of a long row, without back street or passage, a single combined drain may be laid under one of the houses from back to front. This will be more economical and more generally satisfactory than a separate drain for each house. The pipes under the building must be of cast-iron, and an inspection-chamber must be provided at each end. No connexion must be made with this pipe under the building, and none if possible between the two chambers. A "typical arrangement" is shown in fig. 82. The drains from rainwater-pipes and waste-pipes are, where possible, carried to gully-traps (G.T.) ventilated on the inlet side; the drains above these traps are shown by thick dotted lines, and have untrapped "shoes" at the inlets, so that there is an uninterrupted current of air along each drain. The sink on the ground floor and the bath and lavatory on the first floor are served by the same waste-water shoe (W) in each case. Manholes 1 and 2 (M1 and M2) are junction-chambers with airtight covers, and are ventilated by the soil-pipes (S.P.) of the two end houses. Lampholes with airtight covers may be fixed at these points to reduce the cost, but are not as satisfactory. Manhole 3 (M3) is essential, and, like manholes 1 and 2, must have an airtight cover; it is ventilated by the soil-pipes of the two middle houses. The intercepting chamber (I.C.) must be ventilated by means of a perforated cover, or by a pipe-shaft and grating fixed to the garden wall; an intercepting trap with airtight cleansing arm must be fixed at the outlet of the chamber to intercept the drains from the sewer. The drain between manhole 3 and the intercepting chamber must be of cast-iron, and may with advantage be entirely surrounded with concrete; the diameter of this and the other drains must be in accordance with local by-laws, but a 5-in. main and 4-in. branches are large enough for all the sewage and rainwater arising from these premises.

The arrangement shown in fig. 82 is not the only one which may be adopted. The drain from M1 may be intercepted from M3 by means of a ventilated trap near the latter, so that this section of the drains is intercepted and separately ventilated. Similarly the three drains

entering M3 from the right may be collected to a small junction chamber, and there intercepted. Such duplication of traps, however advantageous it may be in preventing air from entering the branch drains from the main, is unnecessary in a small system of this kind. It must not be forgotten that nearly all stoppages of drains occur at traps, and the aim of the architect ought to be to reduce the number of these fittings as much as can safely be done.

A system of drainage for a single house in the middle of a row is shown in fig. 83. In this house the water-closets are arranged above each other, and one soil-pipe (S.P.) serves for them and the slop-sink. The water-closets adjoin a central area. The London County Council by-laws specify that at least one wall of a new internal water-closet must be an external wall, and must "abut immediately upon the street, or upon a yard or garden or open space of *not less than 100 square feet of superficial area*, measured horizontally at a point below the level of the floor of such closet." The area in the illustration fulfils this condition. An external water-closet "below the surface of the ground and approached directly from an area or other open space available for purposes of ventilation" will be approved if the open space contains at least 40 superficial feet, and is not less than 5 ft. wide, and not covered otherwise than by a grating or railing. The manhole (M1) at the head of the drain receives the branch from the trapped gully (R. and W.), to which the waste water from the scullery sinks and dressing-room lavatory, and the rainwater from the main roof are led. This gully may be a grease-gully, automatically flushed from a tank, which may with advantage be fixed in the scullery to prevent the freezing of the water. The manhole has an air-tight cover, and a ventilating pipe (V.P.) is carried up the wall of the building to a suitable point above the eaves or ridge. As an alternative arrangement, the drain from M_1 to M_2 may be intercepted near the latter, an opening for air being provided at each end; the air from the lower part of the drainage system will thus be prevented from passing along the upper drain. The waste-water gully (W. and R.) in the area receives the discharges from three pipes, (1) wastepipe of butler's sink, (2) main external wastepipe from lavatories and baths, and (3) rainwater pipe. The drains from these and from the rainwater gully (R) are taken to the manhole or junction chamber (M2), which is provided with an airtight cover. The intercepting chamber (I.C.) is constructed in the front area, and has an airtight cover and an airpipe (A.P.) fixed to the front wall of the area and finished with a grating about a foot above the ground. Surface-water is collected by the trapped gully (S.W.). The drains from M1 to I.C. ought in any case to be of cast-iron, and the same material may with advantage be used for the branch drains.

The country-house and stables shown in fig. 84 have two sets of drains, those from the carriage drive, &c. (not shown in the illustration) being taken to old field-drains. The drainage has been carried out at two different times, on account of additions having been made to the house, and the drawing does not in every detail represent the work as executed. The servants' water-closet is on the ground floor at S. P. 1. The second soil-pipe (S. P. 2) serves water-closets on the ground and first floors. The third soil-pipe (S. P. 3) is from the slop-sink inserted during the recent additions, and the waste water-gully near this (W. & R.) receives the waste pipe from the new servants' bath and lavatory, as well as a rainwater-pipe. S. W. is a surface-water gully at the bottom of a small area. The channel C alongside the small projection at the back of the house conveys rainwater from the pipe at R to the gully at W, which receives the wastes from a butler's sink and lavatory on the ground floor and a bath and lavatory on the first floor. The drains at the back of the house might have been intercepted from the main by means of an intercepting trap placed in M4 or in a small chamber to the left of M5.

The stable-drain from M2 to M5 is in a straight line. The main stable-drain runs under the floor from M1 to M2, the branch-drains being connected by means of pipe-junctions. The head of the drain receives the rainwater from the back of the roof, and surface-water from the channel C; these waters serve to flush the drain. A ventilating-pipe (V.P.) is shown to be carried up the wall from M1 in order to ventilate this branch of the drainage system. A word about stable-gullies may not be out of place in this connexion. Many of the gullies supplied even by well-known makers of stable-fittings are far from satisfactory. Some have merely an oblong opening in the side, and it is therefore impossible to make a watertight joint between the gully and the drain. Others have a projecting outlet, rectangular in cross section, designed for fitting into a hole of similar shape cut in the side of the drain-pipe; this joint also is difficult to make watertight, and deposits are almost certain to occur, as the sewage enters the drain at right angles to the flow. Many gullies are of the dip type with square corners, and cannot possibly be kept clean. A stable gully ought to have the same general shape as an ordinary gully-trap, the outlet being circular; it may have a perforated receptacle to retain litter, or may be fitted with an upper and lower grating, the latter being above the standing water and having small openings, so that large pieces of litter will be retained.

The intercepting chamber (I.C., fig. 84) has a perforated cover; the other manholes have air-tight covers. The branch drains from the rain-water pipes on the front and end of the house are connected to pipe-junctions in the main drain, junction-chambers not being necessary for such drains.

OBITUARY.

MR. T. P. LILLY.—The death has just occurred at Plank House, Gillingham, Dorset, of Mr. Thomas Parkes Lilly, at the age of seventy-six years. The deceased came to Gillingham in 1857, and, as the agent of Brassey & Co., was responsible for the construction of the Salisbury to Yeovil branch of the London and South-Western Railway. Apart from this particular work, he had considerable experience in railway construction in Belgium and elsewhere. He devised the water-supply scheme at Rolls Bridge, which has proved quite a boon to residents in the Wyke district. He owned the stone quarries at Chilmark, having works at Tisbury station.—*Salisbury and Winchester Journal.*

GENERAL BUILDING NEWS.

ST. CATHERINE'S CHURCH, HORWICH.—The new church is situated on a site near Chorley New-road, and the portion completed consists of nave, side aisles, vestries, and temporary chancel, leaving transepts, side chapel, chancel, and east end to be added at some future time. The present part provides about 600 sittings, which number will be largely increased when the church is completed. In the basement, a large parish room is provided, also lavatories, &c. Externally the building is built of local brick, with red Ruabon terra-cotta dressings, and North Country green slates with red ridge. The windows are filled with lead glazing of ornamental design, and the clearstory walls are finished with rough cast, the lower walls being faced with pressed brick with internal dressings of red Rainhill stone. The inside woodwork is of pitch pine, left unvarnished, the inner boarded ceilings, which will be waggon-shaped, being left to be carried out at some future time. The floors of passages to aisles are of red Ruabon tiles, and the main entrances are at the west end, internal screens of pitchpine filled with lead glazing being provided to each. It is proposed to seat with chairs for the present, and the lighting is by ornamental pendants hung from the nave arcading, and incandescent light is to be used. The heating is by hot water on the low-pressure system, and has been carried out by Mr. John Crook, of Bolton. The temporary chancel is of the required size, and is separated from the nave by temporary chancel arches, the two side bays of which are filled in with low pitchpine screens of suitable design. The contractors for the whole of the works are Messrs. Moore Bros., of Rawtenstall, their sub-contractors being Mr. T. C. Cowpe, of Rawtenstall, plastering and painting; Mr. Wm. Shaw, Farnworth, slating; Mr. Wm. Witter, Bolton, plumbing; and Messrs. Walmsley & Co., Preston, lead glazing. The work has been carried out from the designs and under the superintendence of Mr. R. Knill Freeman, of Bolton and Manchester.

RESTORATION OF FELTON CHURCH, NORTHUMBERLAND.—On the 25th ult., the ancient parish church of Felton was reopened after restoration. The restoration of the church has been carried out under the direction of Mr. W. S. Hicks, Diocesan Surveyor. A structure which was erected sixty years ago has been removed, and a new wall built on the old foundation. Three new tracery windows have been inserted, and a new vestry has been built, the old vestry having been converted into an organ chamber, with a view to having a larger organ in future. A new leaden roof has been fixed throughout, and there have been alterations and improvements in the chancel; and the improvements include a new boiler, a heating apparatus, incandescent lights, a new lectern and credence table, font-ewer, and other church furniture. The cost of the renovation has been over 1,000*l.*

CHURCH, WALWORTH.—The new church which it is proposed to erect at Walworth will be a thanksgiving church for conversions in this country, and will be called the Church of the English Martyrs. The architect is Mr. Francis Tasker. Messrs. N. Gough & Co., of Hendon, are the builders.

ST. JAMES'S UNITED FREE CHURCH, KILMALCOLM, RENFREW.—The new St. James's United Free Church, Kilmalcolm, will, at the outset, seat a congregation of over 600, while a gallery can be added to accommodate some 200 more. The church has been designed by Mr. William Leiper, R.S.A., and is estimated to cost 10,000*l.*

UNITED METHODIST FREE CHURCH, LEIGH-ROAD, WESTCLIFF-ON-SEA.—The opening of this church took place recently. The church is designed in Late Perpendicular Gothic, freely treated, and is faced with red bricks externally, the dressing and tracery being of white Costessey work. The roof is covered with green slates. The main gable is flanked on the one side by a dwarf octagonal turret and on the other by a square tower, the latter terminating in a spirelet. The church is designed for future deep double transepts, but these are at present only erected to a depth of a few feet. School and class rooms are provided for in the future. The present portion has been erected by Messrs. Battley, Sons, & Holness, Old Kent-road, S.E., the contract amount being 2,124*l.* The architects, whose designs were accepted in competition, are Messrs. George Baines and R. Palmer Baines, Clement's Inn, W.C.

CHAPEL FOR CARNKIE BIBLE CHRISTIANS, CORNWALL.—A new Bible Christian Methodist Chapel was opened recently at Carnkie, a village midway between Helston and Falmouth. Internally the chapel measures 43 ft. by 32 ft. 6 in., and it has an orchestra with provision for a large choir and an organ. A vestry for the minister is arranged on one side of the orchestra, and on the opposite side there is one for the choir. The building was designed by Mr. Sampson Hill, architect, Redruth.

WESLEYAN METHODIST CHURCH, THORNTON, LEICESTERSHIRE.—The new Wesleyan Methodist church and schools at Thornton were opened recently. The church is planned to seat 250 adults, and has an organ and choir gallery behind the rostrum. A schoolroom with a vestry and class-room, and kitchen and other accommodation, adjoins in the rear. The style is late Gothic, and the walls are of Ellistown red bricks with dressings of Derbyshire stone. The principal features in the front are a five-light stone traceried window, and a turret, with lead-covered spire. The total cost of the building, exclusive of the site, will be about 2,000*l.* Messrs. Tait & Herbert were the architects.

BOARD SCHOOLS, SALFORD.—Memorial-stones were laid on the 24th ult. of two of the schools which the Salford School Board are erecting in the borough, one in Tootal-road, Weaste, and the other off Regent-road, in West Peel-street. The school at Tootal-road is arranged in three departments, the accommodation being for 395 infants, 440 boys, and 440 girls. Each department is provided with a central hall, with seven classrooms leading out of it. There is also provision for the teaching of cookery, laundry-work, and manual instruction. The total cost of the buildings will be 15,738*l.* The design, which has been prepared by Mr. H. E. Stelfox, of Manchester, is English Renaissance in style. The second school is being erected to replace two existing buildings which did not meet the requirements of the Board of Education. The school will consist of two departments, one "mixed" for 450 children and the other for 327 infants. The plans of the school have been prepared by Mr. J. B. Broadbent, and the total cost is estimated at 8,747*l.*

NEW EMPIRE THEATRE OF VARIETIES, NEWCASTLE-ON-TYNE.—The foundation-stone of the new Empire Theatre of Varieties (which is to be erected in Newgate-street, Newcastle, taking in the whole of the existing site and a considerable area adjoining) has just been laid. The architect of the new building is Mr. Frank Matcham, of London. The present Empire, including the Scotch Arms Hotel, and the property to the right and left, which has been acquired, will be pulled down. A portion of the stone front will remain, but to this will be added a large building carried above the existing frontage and terminating in towers. It is proposed to erect a glass shelter along the whole of the front, and the side road will be similarly protected for patrons of the pit and gallery. All the available area is to be occupied by the new buildings. The ground floor or pit, instead of being approached by a staircase as at present, will be slightly lowered below the street level. The principal entrance to the new theatre will be from Newgate street. The new theatre will be heated by means of steam and lighted by electricity. The stage will be 60 ft. wide and 50 ft. deep.

ALTERATIONS TO THE PRINCE'S THEATRE, BRISTOL.—Extensive alterations and improvements are now in progress at the Prince's Theatre, Bristol. The alterations have been planned by Mr. Frank Matcham, of London.

PROPOSED CENTRAL FIRE BRIGADE STATION, DUBLIN.—On the 22nd ult. Mr. Cowan, Chief Engineering Inspector of the Local Government Board, held an inquiry at the City Hall with reference to an application made by the Dublin Corporation to the Local Government Board to sanction

two loans, one of 25,000*l.* for the erection of a Central Fire Brigade Station at the corner of Tara-street and Great Brunswick-street, the second loan applied for being one of 10,000*l.* to enable the Corporation to make advances under the Small Dwellings Acquisition Act of 1899. Mr. C. J. McCarthy, City Architect, gave evidence as to the plans of the proposed central station.

BATHS, HECKMONDWIKE. — New baths were opened at Heckmondwike on the 26th ult. The baths are a section of a suite of buildings which also embrace an electric lighting plant and fire station. The former comprise a manager's house and office, laundry, four first-class slipper and a similar number of vapour and douch baths, eight second-class baths of each variety, and fifty-eight "rain baths"; a plunge bath for adults, 75 ft. by 30 ft., another small one for children, together with Turkish baths, and the necessary cooling and shampooing rooms. The steam required for the baths is supplied from the electric lighting station. The premises have been erected from designs prepared by Mr. J. Saville, Surveyor to the Council, under whose superintendence the works have been carried out.

MUSEUM, CARDIFF.—A series of plans for the new museum in the Cathays Park, Cardiff, was approved for recommendation to the Corporation by the Museum Committee on the 25th ult. Mr. E. Seward, who prepared the plans, said he would keep in view the necessity for harmony with other buildings in the park.

ISOLATION HOSPITAL, BEDFORD.—The new infectious diseases isolation hospital for the Bedford Rural District Council is situated on the lower slope of Oakley or Milton Hill, a short distance beyond Clapham and off the road leading thence to Milton Ernest. Mr. H. Young has been the architect; and the tender of Mr. T. H. Coleman, builder, was accepted for the work. The contract price was 7,143*l.*

NEW SCHOOLS, MARPLE.—New schools are now in course of erection in connexion with All Saints' Church, Marple. The foundation-stone was laid on Saturday, the 3rd inst. The accommodation is for 300 children, the cost being about 7*l.* per child, exclusive of the land and furnishing. Messrs. Robinson & Sons, of Hyde, are the contractors; the architects being Messrs. J. Hunt & Son, of Stockport.

SANITARY AND ENGINEERING NEWS.

RESERVOIR, LANCASTER.—The Lancaster Corporation have just completed the waterworks undertaking, which was begun in 1854, by the opening of the Blea Tarn storage reservoir. The new reservoir has a holding capacity of 120,000,000 gallons, and is now full. It has been constructed under the superintendence of Mr. John Cook, Borough Surveyor and water engineer to the Corporation, Mr. James Mansergh, C.E., the original engineer for the Lancaster Waterworks, being consulting engineer for the present extension. The estimated cost was 61,000*l.*, but the reservoir has been constructed for about 9,000*l.* less than the estimate, and the holding capacity has been increased by 20,000,000 gallons beyond what was originally intended.

SANITARY WORKS AT BUCKINGHAM PALACE.—The drainage and other sanitary arrangements which were carried out at Buckingham Palace by the officials of His Majesty's Office of Works a few years ago have been thoroughly inspected and tested by Professor Corfield, M.D., the Consulting Sanitary Adviser to H.M. Office of Works, who has reported "that the drainage arrangements have been very well planned and carried out, and reflect credit on all concerned with them." He has, however, suggested a number of improvements in the sanitary arrangements generally, the most important of which have been already carried out under his supervision and to his satisfaction. The remainder, which consist chiefly of certain rearrangements, will be carried out in the autumn.

FOREIGN.

FRANCE.—An exhibition of decorative art, ancient and modern, is shortly to be opened in the Pavillon Marsan at the Louvre.——The Municipality of Corbeil has opened a competition for the rebuilding of the Hôtel de Ville.——The Fine Arts Department has commissioned M. Yperman, a painter attached to the Commission des Monuments Historiques, to make a careful restored copy of the fresco by Simone Memmi on the gable of Nôtre Dame des Doms at Avignon.——The Corporation of Nantes have voted a sum of 1,346,000 fr. for the carrying out of various architectural works, including the building of a school of drawing for the town and district.——The Municipality of Lyons have decided on the creation of a new public place, ornamented with trees, at the junction of the Avenue de Saxe with the Avenue des Ponts.——Works for the extension of the port are shortly to be commenced at Nice.——Some fine ancient mosaics have been discovered during some excavations in the neighbourhood of Arles. One of them, about 10 ft. long, represents the carrying off of Europa. The Archæological Society of Provence is directing the excavations.——The jury in the competition opened at Lilas for the laying out of a public square there has awarded the first premium to M. Bévière, the second to M. Durand, and the third to M. Chesnay.——An international exhibition of art is to be held at Lille from the end of the present month to September.——The death is announced, at the age of ninety-two, of Laurent Grandfils, a sculptor who obtained some reputation in the exhibitions under the Second Empire. He had been, for forty years, Professor of Sculpture at the Académie of Valenciennes, and among his pupils there were Crauk, Hiolle, Carpeaux, and other well-known artists. —— M. Félix Vionnois, formerly Architect to the Department of the Cote d'Or, has died at the age of sixty-one. He was a pupil of Ginain and of Hippolyte Lebas, and had obtained the Achille Leclerc prize in 1869 and the Blouet prize in 1870, and a medal in the Salon of 1873. Among his numerous works are the Monument de la Défense at Dijon, the restoration of the Palais de Justice of the same town, and a number of buildings in and around Paris.

INDIA.—A new railway station is being erected at Mooltan cantonment to replace the old Sind, Punjaub, and Delhi Railway station.——The District Board of Backergunge is preparing a scheme for a railway line from Barisal to Palhardi.——Extensive additions are being made to the Port and Shipping Office in Calcutta.——A large block of model dwellings recently erected in Elgin-road, Calcutta, has just been opened by the Lieutenant-Governor of Bengal. The new building contains sixty-seven rooms, each 12 ft. square, and is of three stories. When the whole dwellings scheme is completed it is believed that the health of the city will be considerably improved.——The Viceroy has accepted the scheme prepared by Mr. W. Banks Gwyther, F.R.I.B.A., for the Delhi Art Exhibition. The design provides for a large carriage porch, from which a spacious entrance hall is reached. Ranges of artisans' stalls run round the outside of the exhibition building. The offices, storage-rooms, &c., are situated opposite the public entrance. On the upper floor a hall and band-gallery is to be situated, as well as a broad promenade.——The additions to the public offices in Rangoon have cost thirty lakhs of rupees. ——The water-supply scheme for Amritsar municipality is estimated to cost twelve lakhs of rupees, and the local authorities have applied for the sanction of the Indian Government to carry out the work.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS. —Mr. Herbert Clarke, civil engineer, has removed his offices from 8, Grant's-lane, Boston (Lincolnshire), to Church-lane, in the same town.——Mr. E. Harding Payne, architect, has removed his offices from No. 28, John-street, Bedford-row, to No. 11, in the same street——Mr. Christopher M. Shiner, architect, has removed his offices from 93, Bond-court, Walbrook, to 6, 7, and 8, Crutched Friars, E.C.

EXHIBITIONS: WOLVERHAMPTON AND CORK.—On the 1st inst. the Duke of Connaught opened an Art and Industrial Exhibition at Wolverhampton, which has been promoted at a cost of 100,000*l.* On the same day Cork International Exhibition was opened.

THE SIMPLON TUNNEL.—According to an official despatch received at the British Foreign Office, the piercing of the Simplon Tunnel on the Italian side has met with an unexpected obstacle in the shape of water, the flow of which amounts to over 11,000 gallons a minute. This occurred nearly six months ago, and since then very little progress has been made with the boring. The contractors recently issued a statement to the effect that it is not the water itself that has interfered with the boring, but the decomposed nature of the soil to be pierced and the necessity for strengthening the tunnel as it proceeds. They say they have still a good margin of time in hand, and that they feel sure of being able to complete the work within the period stipulated by the contract, namely, by May 13, 1904, unless other unforeseen difficulties should arise. The piercing on the Swiss side has proceeded uninterruptedly.

PROPOSED ABOLITION OF THE CITY ARCHITECTSHIP, ABERDEEN.—A meeting of the Committee of the Aberdeen Town Council appointed to deal with the question of the rearrangement of the Burgh Surveyor's Department was held on the 31st ult. The meeting decided on the abolition of the office of City Architect. For this purpose they resolved to ask the Burgh Surveyor to draw up a report showing what extra staff he would require in his office in order to enable him to overtake the work at present performed by the City Architect. The finding of the Committee was unanimous.

CAPITAL AND LABOUR.

STRIKE OF LABOURERS IN THE STOURBRIDGE BUILDING TRADE.—The bricklayers' labourers in the building trade in Stourbridge and the surrounding district within an area of three miles came out on strike on the 1st inst. for an advance of wages. They have not had a standard rate of wages hitherto, and ask all round for 5½d. an hour, which in many cases would be an advance of 1d. per hour. The bricklayers and carpenters in the district have also been asking for an advance, but the Employers' Association have just come to an agreement with the bricklayers and, practically, also with the carpenters. The questions raised in their case have for the most part been a matter of the arrangement of working rules.

LEGAL.

IMPORTANT TRADE UNION APPEAL.

THE case of Read *v.* The Friendly Society of Operative Stonemasons and Others came before a Divisional Court of King's Bench, composed of the Lord Chief Justice of England, Mr. Justice Darling, and Mr. Justice Channell, on the 3rd inst., for judgment on an appeal by the plaintiff from the decision of the Judge of the Ipswich County Court giving judgment for the defendants.

In this case the plaintiff brought the present action against the defendants for damages for wrongfully and maliciously inducing Messrs. Wigg & Wright, of Ipswich, to break a contract of apprenticeship by which plaintiff was bound to them for three years as a stonemason. The apprenticeship deed was dated June 1, 1900, at which date the plaintiff was twenty-five years of age. By this deed plaintiff covenanted to serve Messrs. Wigg & Wright for the term of three years at the wages of 15*s.* a week, his employers covenanting, on the other hand, to teach him the trade. Messrs. Wigg & Wright and the men employed by them were members of the defendant Society. The masters and men had drawn up certain rules, which Messrs. Wigg & Wright had agreed to and signed. Rule 6, which applied to Ipswich and district, was to the following effect:—"Apprentices.—That boys entering the trade shall not work more than three months without being legally bound apprentice, and in no case to be more than sixteen years of age, except masons' sons and stepsons. Employers to have one apprentice to every four masons on an average." At a lodge meeting of the defendant Society on August 13, 1901, a resolution was passed that if the plaintiff started work for his firm as a mason, one of their employees was to report the fact in two hours. In consequence of the action of the Society from August 13, 1900, to May 20, 1901, Messrs. Wigg & Wright failed to employ Read as a stonemason, or to teach him the trade; but Read continued to do the work of a labourer. On May 20, 1901, the secretary of the Society wrote to Messrs. Wigg & Wright that the members of the Society considered the firm's action an infringement of Rule 6 and stating that if Read started working at the trade they were compelled to protest against the firm for introducing an individual not of the trade, and that the Society had under their general rule empowered their members working for the firm to take prompt action in the matter. It was admitted by the defendants that "to take prompt action" meant that the men in the firm's employ should give two hours' notice and leave their employ if they thought fit. The County Court Judge held that the plaintiff had no cause of action against the defendants, who had acted bonâ fide in the interest of the Society, and from no improper motive, even though their interpretation of the rule might not be correct. From this decision the plaintiff now appealed.

The arguments on the appeal by Mr. Henlé for the appellant (plaintiff), and Mr. Chester-Jones for the respondents (defendants), concluded on the 16th ult., when judgment was reserved.

Mr. Justice Darling read his judgment, in the course of which he said he thought that the County Court Judge had come to a wrong conclusion, and that there ought to be a new trial. The plaintiff, by virtue of the contract he had entered into, had the right to demand that Messrs. Wigg & Wright should teach him the trade, and to interfere with that right might give a cause of action against those who did so. It had been argued for the defendants that they were justified in what they did because they had entered into a contract with Messrs. Wigg & Wright themselves, the terms of which were inconsistent with the contract between that firm and the plaintiff. It might be that a person, or many persons acting in concert, had a right to demand the fulfilment of a contract entered into with him or them, even though the consequence of such fulfilment necessitated him who performed it breaking a contract made by him with somebody else. But the contract the defendants set up was one which, if proved, might, by reason of its being in restraint of trade, be incapable of being enforced, and in that case there could be no sufficient justification to seek to hold Messrs. Wigg & Wright to it. There was not sufficient evidence to prove whether there was a contract between Messrs. Wigg & Wright and the defendants. Whether the contract was legal or illegal could only be determined when its terms and the parties to it were ascertained.

Mr. Justice Channell agreed with the judgment of Mr. Justice Darling.

The Lord Chief Justice also read his judgment, in which he said he considered the decision of the learned County Court Judge was unsatisfactory. But the question which presented the most difficulty to his mind was whether the facts before the Court enabled it to finally decide the question raised in the action. The evidence in this case

established that the defendants, instead of taking action against Messrs. Wigg & Wright for a breach of contract, if there were a contract embodied in the rules of the Society, procured for their own personal ends Messrs. Wigg & Wright to commit an actionable wrong, viz., to break the terms of a special contract with the plaintiff. He felt some doubt whether the arrangement embodied in the rules was protected by the Trade Union Act, 1871, but it might be that Section 3 was sufficient to prevent the Court from holding that, if the rule amounted to an agreement between Messrs. Wigg & Wright and the defendants, it was void or voidable. This was a contract by the plaintiff, a man of full age in his own right. The provision as to one apprentice to every four masons caused some difficulty, but assuming the rule to be binding on Messrs. Wigg & Wright, he thought the defendants had no right to bring pressure to bear to procure Messrs. Wigg & Wright to break their contract with the plaintiff. There was nothing to show that the Society or any of its members would be injured by Messrs. Wigg & Wright's fulfilment of the contract with the plaintiff, or that the action was taken on behalf of individuals to protect their own interests. He thought that the County Court Judge should have entered judgment for the plaintiff, but as his learned brothers were not prepared to go so far, there could only be judgment for a new trial.

The appeal was accordingly allowed, and a new trial ordered.

Leave to appeal was granted.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

385.—PROCESS OF BRICK MOULDING: *F. S. Pullan and W. H. Mann.*—A machine which is claimed as being especially adapted for pressing sand-faced bricks, comprises a mould whereof the two parts, having their sides inclined, are forced together diagonal-wise by means of vertical wedges, upon the fall of the upper plunger. The wedges have screwed rods that slide through the upper cross-head; between them and the cross-head are interposed cushioning springs. On to the framework of the machine is bolted a moulding frame, against the inclined surfaces of which will slide the similarly inclined surfaces of the two sections of the mould.

437.—DRAUGHT APPARATUS FOR BRICK KILNS: *F. P. B. Fiske.*—The portable apparatus is devised for continuous and other kilns; in one of the former a row of openings is made in the roof of each chamber with grooved rings for their sand-luted covers, the blast-inducer comprises an electrically-driven fan at one end of a closed tube with branches to all of the openings of one chamber, it can be lifted with eyebolts to each of the chambers in turn by means of a crane, &c.; metallic screens are dropped through the openings and over the ports so as to prevent communication between any two of the chambers, in each instance the screen is weighted at its lower edge and is sustained by a plate which reposes upon a ledge on one side of the port; air and hot gases may be drawn through the chambers, or air may be impelled into the chamber that is being fired.

457.—PROCESS OF HARDENING ARTIFICIAL STONE: *C. Hörisch.*—Artificial stone and similar compounds are hardened with carbonic-acid gas, waste or exhaust gases, air or steam laden with silicate of soda, and other gases or vapours. The gas is forced into the moulded blocks through pipes or into cavities fashioned in the blocks. Its permeation is facilitated by the forming of a vacuum when the blocks are disposed in tiers. They can be separated with closed rings for adjustment of the openings which lead into the cavities.

458.—FACING-TILES OF GLASS: *A. F. Davis.*—In order that glass plates, made of opal, for facing walls, shall adhere to the cement they are roughened by the application of a saturated solution of hypo-sulphite of soda, and are heated. They are then cut into suitable shapes, and a stone or wheel and emery or sand are used for making grooves in the rough backing.

481.—MEANS FOR VENTILATING CLOSETS: *A. Dronillard and E. I. Scully.*—At the rear of the basin is a frame which carries a water-wheel and a co-axial fan; a spring valve in the service-pipe is mounted underneath the hinged seat, which, when depressed, will cause the valve to open and deliver a jet of water that drives the wheel, a passage into the basin being provided for the exhaust water. Other passages will at the same time exhaust the air. For a range of closets, communication from the pipe to the basin is effected by the lowering of the seat, each of the seats being hinged on to the ventilating-pipe that is common to all of them. A starting-valve is provided under each seat, whilst the exhaust-fan is common to the range of seats.

500.—ELECTRICAL COUPLINGS: *T. Henwood and Reason Manufacturing Co.*—The couplings are more especially intended for connecting branches that have two conductors to concentrical cables which have three conductors. A fitting for connecting the inner conductors comprises a semi-cylindrical casting, projections from which can be clasped around the ends of the tee-piece when it has been affixed to the main and the branch has been inserted into the tubular portion. A frame or tee-shaped bar having three split collars at its ends forms a connecting piece for the outer conductors, binding-wires secure the ends of the conductors and the collars are put upon the insulation. A bar fitted with the collars will serve for a simple connexion of the inner conductors.

542.—A HINGE FOR CLOSET-SEATS AND OTHER PURPOSES: *C. Evans.*—The inventor fastens the leaf that carries the socket on to the back rail, and affixes two other leaves with pins to the seat-lid and the seat respectively; he causes the pins to engage with the opposite sides of the socket.

558.—IMPROVEMENTS IN FLUSHING APPARATUS: *F. Duckett and Son, A. Duckett, F. S. Button, and F. W. Bullock.*—Over a tipping-tank is set a dished cover into which the sink discharges. Pipes from the tank convey the flushing water into a basin, across the back of which the flushing-channel is extended. The channel has a plug that closes its end.

568.—DISCONNECTIBLE COUPLINGS AND BUTT JOINTS FOR PIPES: *D. Hurst.*—Butt joints for malleable or flexible pipes of lead or indiarubber, and for hose, are made by inserting cone-shaped ferrules into the pipes or hose, and by means of external sleeves, whereof the one is screwed for taking the coupling-nut, and the other has a shoulder. Only one internal ferrule is needed for securing a flexible or malleable pipe to a flanged pipe of some hard metal. Indiarubber external sleeves are used for a butt-joint with woven hose. For the two ferrules may be substituted one single ferrule, and corrugated sleeves and ferrules may be used. Confer also No. 16,340 of 1899.

573.—APPLIANCES FOR WINDOWS AND DOORS: *F. E. Bundy and F. A. Conne.*—The inventors contrive that when a door has been shut a projection at the bottom of the door shall impinge against a weather-strip or movable part of the sill so as to tilt it about its outer edge to bring the inclined surface into the vertical plane and press it against the outer face of the door. The ends of the weather strip fit into recesses cut in the side of the frame. For double doors or casements a bevelled leaf, which under normal conditions remains closed, enables the strip to rise when the acting leaf is shut. The latter leaf is bevelled diagonal-wise upon the hinged side of the door.

592.—IMPROVEMENTS IN KILNS: *W. P. Grath.*—Each furnace of a single kiln is placed in direct communication with the bag flue at the adjacent side of the kiln, and with the corresponding bag flue at the opposite side, by means of flues beneath the floor. The distribution of the products of combustion is regulated with dampers, and they are dissipated from any one furnace in the adjoining flue with baffles. For a kiln after the continuous kind there are branch flues from the main chimney flue that convey waste gases from one chamber along the flues beneath the next chamber, whereby it will be heated for a drying of its contents.

623.—FLUSHING CONTRIVANCES: *W. Murchland.* The inventor seeks to minimise noise by causing the inlet to dip into one compartment of a container which is fastened to one side within the tank. Water flows over from that compartment into the body of the cistern as well as into the other division of the container, out of which an auxiliary siphon leads into the principal siphon for the discharge. The lesser siphon serves to effect an after-flush.

645-6.—GAS-LIGHTING AND GAS-BURNING APPLIANCES: *R. Beese.*—As a thermostatical device becomes heated by the main flame it is moved, together with a tube, of which the upper carries a self-ignition contrivance, so that the lower end of the tube shall clear the gas aperture of the burner. The thermostatical contrivance will resume its former position as it becomes cool after the extinction of the flame, whereupon the lower end of the tube will be projected over the gas aperture in order that the gas when it is next turned on shall flow up the tube, to be ignited by the igniter and so to light the burner.

646.—A flange for the adjustment of a sleeve upon a union having many gas-ways is devised for regulating at one and the same time the supplies of air and gas to the mixing-tube of the burner; when the sleeve has been adjusted an orifice in the gas nozzle upon the sleeve will be opened, to a greater or less degree, by a conical projection from the fitting, whilst a hit-and-miss valve, which is formed by an extension from the upper portion of the sleeve, will to a similar extent open the air-supply apertures.

677.—IMPROVEMENTS IN CLOSET-BASINS: *W. Hassall, P. H. Mellor, and A. H. Brook.*—For a flushing-horn and scroll the inventors provide that the flush water shall be directed to both the right and left by means of a wedge-shaped plate which they insert opposite the flushing-inlet; the plate may be variously affixed and be also made in one piece with the basin.

683.—CONSTRUCTION OF A DRYING-SHED FOR BRICKS: *H. Hemming.*—A foundation layer of hard cement or asphalte forms the floor over which is laid a course of open brickwork having flues and spaces arranged crosswise and lengthwise in it, with another layer to cover the flues, and a top layer of blue bricks. At one end of the shed exhaust or waste steam is conveyed into the flues, and inclined passages are provided for the escape of the used steam and water of condensation. The drainage of water may also be facilitated by laying the flues, and it may be the floor too, at an incline. There are middle non-perforated flues which convey steam to the spaces or flues that are more remote from the inlet flue, and columns, after the ordinary kind, carry the roof.

738.—EXTINCTION OF FIRE: *R. Houll.*—A compound to be thrown into the flames consists of an admixture of sodium bicarbonate and fuller's earth, with which may be combined another admixture which contains pipeclay, ochre, salt, "metallic brown," and ammonium phosphate: the latter compound may, however, be used separately.

770.—LOCKING AND FASTENING APPLIANCES: *H. W. Eicher, H. G. Will, and G. H. Duncombe.*—For locking and fastening doors the inventors devise two cylinders which they screw on to a face-plate. a sliding-bolt in the upper cylinder, guided by a partition, has arms which are joined to a head, at that end (being remoter from the face-plate) of the cylinder are springs which press against the head. To the knob spindle is attached a ratchet-wheel which engages with ratchet-plates, each of which consists of prong-pieces and a body, that slide upon the inner surfaces of the arm. As one frees the bolt by turning the knob, the ratchet-plates will be moved in opposed directions until the bolt is moved by the contact of the end of a plate with the head, the springs will then cause the bolt to assume the position for locking. In the lower cylinder is a partition that guides the locking-bolt which has recesses that engage with a projection from a rod which the end plate of the cylinder maintains in its place. The key will raise a stem upon the bolt in order that the one or the other of the recesses in the locking-bolt shall be thrown into engagement with the projection from the rod when one desires to shoot, or to draw back, the bolt, which is kept in engagement with the projection with a spring above it. The cylinders are inserted into holes bored in the edge of the door, and the combined appliance is screwed on to the face-plate of the lock.

772.—CONSTRUCTION OF FLOORS: *E. Gockt.*—Wooden or metallic strips are inserted into inclined saw-cuts formed in the under sides of the boards, which will serve for the general flooring or for the border alone. The ends of the metallic strips can be clinched outside the boards; the strips may be either plain, or crimped, flanged, serrated, and so on, and they can be laid in the saw-cuts either angle-wise or parallel-wise, and set at various angles in respect of the edges of the boards.

MEETINGS.

FRIDAY, MAY 9.

Architectural Association.—(1) Mr. Owen Fleming on "Artisans' Dwellings from the Municipal Point of View"; (2) Mr. Louis Ambler on "Artisans' Dwellings from the Private Point of View." 7.30.

SATURDAY, MAY 10.

Institution of Junior Engineers.—Visit to the Great Eastern Railway Works, Stratford. Train from Liverpool-street at 9.17 a.m.

Northern Architectural Association.—An Excursion Meeting. Members to assemble at the Northern Wood Hackinizing Co.'s Works, Walker-on-Tyne, at 3.30 p.m.

MONDAY, MAY 12.

Bristol Society of Architects.—Professor Beresford Pite on "Street Architecture," with limelight illustrations. 8 p.m.

THURSDAY, MAY 15

Royal Institution.—Mr. A. Smith Woodward, LL.D., F.R.S., on "Recent Geological Discoveries" III. 3 p.m.

Society for the Encouragement of the Fine Arts.—Mr. Philip H. Newman on "Pageantry and Art." 8 p.m.

Institution of Electrical Engineers (*Society of Arts, John-street, Adelphi*).—Professor C. A. Carus-Wilson on "Electrical Traction on Steam Railways in Italy." 8 p.m.

FRIDAY, MAY 16.

Royal Institution.—Sir Robert Ball on "The Nebular Theory." 9 p.m.

Institution of Mechanical Engineers.—Conversazione. 9 p.m.

SATURDAY, MAY 17.

Edinburgh Architectural Association.—Visit to Hamilton.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

April 23.—By WM. WEATHERHEAD (at Keighley).

Laycock, Yorks.—12 closes of land, 26 a. 2 r. 11 p., f.	£1,963
Freehold farmhouse and 16 a. 1 r. 3 p.	1,200
Bingley, Yorks.—Clay Hall holding, 2 a. 2 r. 14 p., f.	450
Long Lee, Yorks.—Freehold house, w.r. *10l.* 8s.	150

By STEPHENSON & ALEXANDER (at Pontypridd).

Pontypridd, Glamorgan.—Rhondda-rd., New Bridge Mill Field, 3 a. 2 r. 2 p., f.	2,225
Treforest, The Woodlands, f., p.	810

April 24.—By HEPPER & SONS (at Leeds).

Leeds.—North-st., three building sites, area 444 yds., f.	5,102
Bishopgate-st., building site, area 342 yds., f.	5,130

1, 3, 5, and 7, Bunt-st., and 2 and 4, Milton-st., area 183 yds., f. ... £580
Waterloo-rd., seven building sites, area 840 yds., f. 4,109
Askern-st., six building sites, area 575 yds., f. .. 431
Anchor-rd., triangular site, area 746 yds., f. 700
Cross Myrtle-st., five building sites, area 400 yds., f. ... 111
14 to 20 (even), Ebony-st. and four cottages in rear, area 940 yds., f. ... 650
East-st., two building sites, area 321 yds., f. .. 350
East-st., building site, area 3,431 yds., f. 9,573

April 25.—By WALTER LUDLOW & BRISCOE (at Birmingham).
Pershore, Worcester.—Bryn Issa Estate, 87 a. 3 r. 10 p., f. ... 9,500

By HEPPER & SONS (at Leeds).
Leeds.—Street-lane, two building sites, area 39,395 yds., f. ... 7,320
Park-lane, ten building sites, area 171,270 yds., f. 19,122
Addyman Wood-rd., &c., five sites, area 101,597 yds., f. ... 5,187

April 28.—By ELLIOTT, SON, & BOYTON.
Regent's Pk.—12, Park-sq. West, and 10, Park-sq. mews, u.t. 21 yrs., g.r. 8l. 10s., p. ... 2,880

By MAY & PHILPOT.
Brixton.—23, 25, and 27, Fairmount-rd., u.t. 89 yrs., g.r. 21l., e.r. 135l. ... 1,380
68, Helix-rd., u.t. 82 yrs., g.r. 7l., e.r. 45l. 490
Streatham.—4, Hillside-rd., u.t. 74 yrs., g.r. 15l. 15s., p. ... 700

By MULLETT, BOOKER, & CO.
Hyde Park.—14, Great Cumberland-pl. u.t. 19 yrs., g.r. 10l., y.r. 210l. ... 1,900
Portman-sq.—39, Portman-mews South, u.t. 19 yrs., g.r. 1l., y.r. 60l. ... 590

April 28.—By FRED. VARLEY & SON.
Hackney.—155, Graham-rd., u.t. 67 yrs., g.r. 2l., e.r. 50l. ... 550
Finsbury Park.—51, Finsbury Pk.-rd., u.t. 65 yrs., g.r. 9l. 9s., e.r. 52l. ... 500

By J. H. BETHELL (at Forest Gate).
Manor Park.—Northumberland-av., &c., 76 plots of freehold building land (in lots) ... 8,839

By ROBERTS, SON, & TORY (at Seaton).
Seaton, Devon.—Fore-st., Chestnut Lodge, f., p. . 700

By P. M. PUCKRIDGE (at Swindon).
Aldbourne, Wilts.—Ford Farm, 300 a. 1 r. 23 p., f. 3,000
Hodders enclosure, 19 a. 3 r. 12 p., f. ... 260
The Rectory and 4 a. 2 r. 4 p., f. ... 785
Castle-st., four cottages and 1 r. 7 p., f. ... 170
The Butts, four freehold cottages ... 118
Chiseldon, Wilts.—Smart's Piece enclosure, 13 a. 3 r. 23 p., f. ... 415

April 29.—By DEBENHAM, TEWSON, & CO.
Bayswater.—113, Westbourne-grove (S), and 41, Hereford-rd. (S), f., y.r. 335l. ... 8,600
8, Cornwall-rd., u.t. 54½ yrs., g.r. 10l., p. ... 600
Paddington.—13, Chichester-st. (S), u.t. 40½ yrs., g.r. 10l., y.r. 60l. ... 562

By JOHN BOTT & SONS.
Clapham.—52, 54, and 74, Paradise-rd., u.t. 35 yrs., g.r. 12l., w.r. 133l. 18s. ... 660
Wandsworth.—337, Earlsfield-rd., u.t. 79 yrs., g.r. 6l., w.r. 39l. ... 230

By DUNCAN & KIMPTON.
Clapham.—Rectory-grove, f.g.r. 30l., reversion in 16 yrs. ... 1,060
Turrett-grove, f.g.r.'s 46l. 4s., reversions in 20 to 26 yrs. ... 2,140
Battersea.—13, Lavender-ter., u.t. 75 yrs., g.r. 4l. 10s., w.r. 31l. 4s. ... 250
Balham.—30, Cloudesdale-rd, u.t. 68 yrs., g.r. 6l. 10s., e.r. 42l. ... 470
Westcliff-on-Sea, Essex.—22, St. Helen's-rd., f., y.r. 42l. ... 625

By FISHER, STANHOPE, & DRAKE.
Stamford Hill.—26, Dunsmure-rd., u.t. 81½ yrs., g.r. 8l. 8s., e.r. 60l. ... 650
38, Bergholt-cres., u.t. 83 yrs., g.r. 7l. 10s., y.r. 48l. ... 520

By FURBER, PRICE, & FURBER.
Hatton Garden.—30, Kirby-st., area 1,380 ft., f., y.r. 100l. ... 2,550
33, 34, and 35, Kirby-st., area 4,560 ft., f., p. .. 7,250

By J. S. RICHARDSON.
Hammersmith.—93, Shepherd's Bush-rd., u.t. 80 yrs., g.r. 10l. 10s., e.r. 60l. ... 630
Stratford.—Blyth-rd., a plot of land, with stable thereon, area 3,102 ft., u.t. 44 yrs., g.r. 3l. 10s., y.r. 10l. ... 230

By F. WARMAN.
Crouch End.—42, Coolhurst-rd., u.t. 80 yrs., g.r. 10l. 15s., e.r. 90l. ... 1,100
7, Palace-rd., u.t. 76 yrs., g.r. 8l. 10s., e.r. 45l. .. 370
Canonbury.—53, Marquess-rd., u.t. 44 yrs., g.r. 10l., e.r. 60l. ... 600
Southgate.—Chase Side, The Oaks, f., p. ... 995

By SEDGWICK, SON, & WEALL (at Rochester).
Frindsbury, Kent.—Orchard Meadow, 1 a. 3 r. 3 p., f. ... 100
Four enclosures of land, 32 a. 0 r. 34 p., f. ... 610
Long Land Field, 8 a. 3 r. 1 p., f. ... 205
Hayden-st. Field, 9 a. 2 r. 26 p., f. ... 360
Noke-st. Farm, 21 a. 0 r. 30 p., f. ... 880

By ORGILL, MARKS, & LAWRENCE (at Masons' Hall Tavern).
Neasden.—High-rd., The Old Spotted Dog p.-h., u.t. 26 yrs., y.r. 100l., with goodwill ... 21,130

By HEPPER & SONS (at Leeds).
Headingly, Yorks.—Richmond-rd., Richmond House, area 4,823 yds., f., p. ... 1,400

April 30.—By BAXTER, PAYNE, & LEPPER.
Sidcup, Kent.—Longlands Pk.-rd., Clevedon, f., q.r. 32l. ... 510
Sidcup Hill, Brantingham, f., y.r. 65l. ... 1,045
Foots Cray, Kent.—Foots Cray Hill, Surbiton Villa, f., y.r. 40l. ... 655

By W. A. BLAKEMORE.
Southwark.—22 and 23, Bankside, also C, D, E, F, and G warehouses, Horseshoe-alley in rear, u.t. 80 yrs., g.r. 825l., y.r. 1,715l. ... 6,600
Norbiton, Surrey.—9 and 13, Clifton-rd., u.t. 68 yrs., g.r. 14l., y.r. 62l. ... 545
Shenley, &c., Herts.—Colney Pk. Stud Farm, 76 a. 1 r. 1 p., f. ... 4,800

By MOSS & JAMESON.
Regent's Park.—10, 11, 12 and 13, Culworth-st., u.t. 25½ yrs., g.r. 32l., y.r. 190l. ... £1,300
St. John's Wood.—18, Acacia-rd., u.t. 31½ yrs., g.r. 10l., y.r. 48l. ... 365
Hampstead.—12, Lancaster-rd., u.t. 50 yrs., g.r. 12l., e.r. 70l. ... 435
Camden Town.—25, Arlington-rd., u.t. 33½ yrs., g.r. 4l., y.r. 48l. ... 435

By R. TIDEY & SON.
Hoxton.—57 to 71 (odd), Canal-rd., u.t. 14½ yrs., g.r. 61l. 8s., w.r. 255l. 12s. ... 575

By HENRY HENDRIKS (at Birmingham).
Edgbaston, Warwick.—98, Bristol-rd., u.t. 42 yrs., g.r. 10l. 12s., p. ... 1,302
Saltley, Warwick.—Salisbury-rd., Hope Cottage and Clevedon Cottages (two), f., w.r. 41l. 12s. 500
Salisbury-rd., two plots of land, f. ... 242

By G. C. LAMBERT (at Croydon).
Croydon.—Montague-rd., f.g.r. 10l., reversion in 956 yrs. ... 300
19, Montagu-rd., f., w.r. 29l. 18s. ... 380
87, London-rd., f., y.r. 70l. ... 1,050
Addiscombe.—40, Outram-rd., u.t. 52½ yrs., g.r. 15l., e.r. 75l. ... 500

By HEPPER & SONS (at Leeds).
Headingley, Yorks.—Morley-rd., Morley House, and 3 a. 3 r. 5 p., f., p. ... 5,900

May 1.—By BEALE & CAPPS.
Notting-hill.—2, Blagrove-rd., f., y.r. 35l. ... 590

By GIBBS & WINTERTON.
Leyton.—Oliver-rd., Stock Villa, f., e.r. 45l. 515
Clapham.—26, Thornbury-rd., u.t. 80 yrs., g.r. 6l. 10s., y.r. 38l. ... 330

By J. HOOD & SONS.
Old Ford.—26, 28, 30 and 32, Gardeners-rd., u.t. 34 yrs., g.r. 15l., w.r. 114l. 8s. ... 700

By NEWSON, EDWARDS & SHEPHARD.
Finsbury Park.—54, Wiberforce-rd., u.t. 65 yrs., g.r. 8l., e.r. 48l. ... 525
South Lambeth.—36 to 50, Park Mansions (flats), u.t. 90½ yrs., g.r. 125l., e.r. 638l. 8s. (including mortgage) ... 3,600
Highbury.—1, Ancona-rd., u.t. 79 yrs., g.r. 7l. 10s., y.r. 34l. ... 385
Holloway.—14 and 16, Nicholay-rd. (warehouses, &c.), u.t. 79 yrs., g.r. 15l., y.r. 120l. ... 1,650
97, 99 and 101, Andover-rd., u.t. 55 yrs., g.r. 7l., w.r. 78l. ... 635
Barnsbury.—28 and 30, Charlotte-ter., u.t. 18½ yrs., g.r. 10l. 10s., y.r. 58l. ... 360

By SALTER, REX, & CO.
Kentish Town.—17, Torriano-av., u.t. 41½ yrs., g.r. 7l. 10s., y.r. 40l. ... 380
5, Wilkin-st. (S.), u.t. 65 yrs., g.r. 6l., y.r. 42l. 480

By STIMSON & SONS.
Bexley, Kent.—Heathend-rd., f.g.r. 14l., reversion in 93 yrs. ... 310
Peckham.—10 and 11, Colyton-rd., u.t. 90 yrs., g.r. 18l., y.r. 190l. ... 1,400
Camberwell.—69, Shenley-rd., u.t. 74 yrs., g.r. 6l., y.r. 34l. ... 365
Bermondsey.—83 and 87, Rouel-rd., u.t. 32½ yrs., g.r. 10l., w.r. 78l. ... 510

By BLACKFORD & SONS (at South Molton).
South Molton, Devon.—Cheney Farm, 31 a. 1 r. 6 p., f. ... 1,275
Rose Ash, Devon.—New Meadow Closes, 11 a. 1 r. 23 p., f. ... 202

By WORSFOLD & HAYWARD (at Dover).
Dover, Kent.—7, 9, and 11, Hillside-rd., f., w.r. 39l. ... 405
152, Clarendon-pl., f., w.r. 18l. 4s. ... 210

By LEWIS & BADCOCK (at New Milton).
Milton, Hants.—Milton Nursery and Old Fernhill Copse, Building Estate, 30 a., f. ... 3,000

By HENRY HENDRIKS (at Birmingham).
Gilbert's Green, Warwick.—Broad-lane, freehold farm, 15 a. 3 r. 14 p. ... 890

May 2.—By NOAKES & NOAKES.
Clerkenwell.—11, Albermarle-st. (warehouse), u.t. 56 yrs., g.r. 28l., y.r. 100l. ... 900
Homerton.—134, High-st. (S), u.t. 64½ yrs., g.r. 19l., y.r. 48l. ... 400

By A. PREVOST & SON.
Mile End.—1 and 2, South-grove, with stabling, workshops, and yard, area 8,000 ft., u.t. 83 yrs., g.r. 60l., w.r. 254l. 16s. ... 675
West Ham.—1 to 6, Curtis-st., u.t. 63½ yrs., g.r. 12l., w.r. 79l. 6s. ... 455
65 and 67, Union-rd., with plot of land in rear, u.t. 73 yrs., g.r. 10l., w.r. 77l. 12s. ... 545
Stepney.—75, Shandy-st., u.t. 15 yrs., g.r. 4l. 6s. 3d., w.r. 32l. 10s. ... 210
Bow.—32, Athelstan-rd., u.t. 52 yrs., g.r. 4l. 4s., w.r. 37l. 14s. ... 340
Stamford Hill.—42, Linthorpe-rd., u.t. 86 yrs., g.r. 7l. 10s., y.r. 50l. ... 600
Ilford, Essex.—Valentine-rd., a plot of freehold land ... 275

By RAYNER & JULIER.
Croydon.—101, London-rd., f., p. ... 1,875

By RIDER & SONS.
Notting-hill.—27, 31, and 33, Clifton-st., u.t. 58 and 60 yrs., g.r. 15l. 5s., w.r. 93l. 12s. ... 625
40 and 42, Blechynden-st., u.t. 60½ yrs., g.r. nil, w.r. 78l. ... 545
13 and 14, Talbot-mews, u.t. 48½ yrs., g.r. 25l., y.r. 35l. ... 225

By TRAFFORD & CARTER.
Hammersmith.—99 and 101, The Grove (S.), u.t. 61 yrs., g.r. 18l., y.r. 100l. ... 1,185
Fulham.—139, 141, and 143, Lillie-rd. (S.), u.t. 69½ yrs., g.r. 29l., y.r. 128l. ... 1,220
Whitechapel.—54 and 55, Greenfield-st., f., w.r. 130l. ... 1,630
Tottenham.—74 and 76, Bruce Castle-rd., f., w.r. 52l. ... 565

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e. for estimated rental; w.r. for weekly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.			
Hard Stocks	1 11 0	per 1,000	alongside, in river	
Rough Stocks and Grizzles	1 9 0	,,	,,	,,
Facing Stocks	2 12 0	,,	,,	,,
Shippers	2 3 0	,,	,,	,,
Flettons	1 8 0	,,	at railway depôt.	
Red Wire Cuts ..	1 12 0	,,	,,	,,
Best Fareham Red	3 12 0	,,	,,	,,
Best Red Pressed Ruabon Facing.	5 5 0	,,	,,	,,
Best Blue Pressed Staffordshire ..	4 6 6	,,	,,	,,
Do., Bullnose	4 11 0	,,	,,	
Best Stourbridge Fire Bricks	4 6 0	,,	,,	,,

GLAZED BRICKS

Best White and Ivory Glazed Stretchers.....	13 0 0	,,	,,	,,	
Headers	12 0 0	,,	,,	,,	
Quoins, Bullnose, and Flats	17 0 0	,,	,,	,,	
Double Stretchers	19 0 0	,,	,,	,,	
Double Headers..	16 0 0	,,	,,		
One Side and two Ends	19 0 0	,,	,,		
Two Sides and one End	20 0 0	,,	,,	,,	
Splays, Chamfered, Squints.....	20 0 0	,,	,,	,,	
Best Dipped Salt Glazed Stretchers and Headers ..	12 0 0	,,	,,	,,	
Quoins, Bullnose, and Flats	14 0 0	,,	,,	,,	
Double Stretchers	15 0 0	,,	,,	,,	
Double Headers..	14 0 0	,,	,,	,,	
One Side and two Ends	15 0 0	,,	,,	,,	
Two Sides and one End	15 0 0	,,	,,	,,	
Splays, Chamfered, Squints.....	14 0 0	,,	,,	,,	
Seconds Quality Whites and Dipped Salt Glazed	2 0 0	,,	less than best.		
Thames and Pit Sand	7	3	per yard, delivered.		
Thames Ballast	6	0	,,	,,	
Best Portland Cement	31	0	per ton, delivered.		
Best Ground Blue Lias Lime..	25	0	,,	,,	

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime..... 10s. 6d. per yard, delivered.
Stourbridge Fire-clay in sacks, 26s. 6d. per ton at rly. dpt.

STONE.

	s. d.			
Ancaster in blocks	1 11	per ft. cube, deld.	rly. depot.	
Bath ,, ...	1 7	,,	,,	
Farleigh Down Bath ..	1 8	,,	,,	
Beer in blocks	1 6	,,	,,	
Grinshill ,, ...	1 10	,,	,,	
Brown Portland in blocks	2 2	,,	,,	
Darley Dale in blocks..	2 4	,,	,,	
Red Corsehill ,,	2 5	,,	,,	
Closeburn Red Freestone	2 3	,,	,,	
Red Mansfield ,,	2 4	,,	,,	
Hard York in blocks ..	2 10	,,	,,	
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	2 8	per ft. super. at rly. depôt.		
,, ,, 6 in. Rubbed Ditto..	3 0	,,	,,	
,, ,, 3 in. sawn both sides slabs (random sizes)	1 3	,,	,,	
,, ,, 2 in. self-faced Ditto	0 9½	,,	,,	
Hopton Wood (Hard Bed) in blocks	2	3 per ft. cube. deld. rly. depôt		
,, ,, 6 in. sawn both sides landings	2	7 per ft. super. deld. rly. depôt.		
,, ,, ,, 3 in. do.	1 2½	,,	,,	

SLATES.

in. in.	£ s. d.			
20 × 10 best blue Bangor..	12 0 0	per 1000 of 1200 at ry. dep.		
,, best seconds ,,	11 10 0	,,	,,	
16 × 8 best ,,	6 15 0	,,	,,	
20 × 10 best blue Portmadoc	11 5 0	,,	,,	
16 × 8 best blue Portmadoc	6 0 0	,,	,,	
20 × 10 best Eureka unfading green....	12 2 6	,,	,,	
16 × 8 ,, ,,	7 5 0	,,	,,	
20 × 10 permanent green	10 5 0	,,	,,	
16 × 8 ,, ,,	5 17 6	,,	,,	

TILES.

	s. d.			
Best plain red roofing tiles..41	6	per 1,000, at rly. depôt.		
Hip and valley tiles....	3 7	per doz.	,,	,,
Best Broseley tiles	48 6	per 1,000	,,	,,
Hip and valley tiles....	4 0	per doz.	,,	,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000	,,	,,
Do. ornamental Do.	60 0	,,	,,	,,
Hip tiles	4 0	per doz.	,,	,,
Valley tiles	3 9	,,	,,	,,
Best Red or Mottled Staffordshire Do. (Peakes).	30 9	per 1,000	,,	,,
Hip tiles	4 1	per doz.	,,	,,
Valley tiles.....	3 8	,,	,,	,,

[*See also page 485.*

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
*Town Hall and Municipal Offices	Deptford Borough Council	100*l.*, 75*l.* and 50*l.*	Aug 30

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., Supplied by	Tenders to be delivered
Brick Culvert, Aston Manor, Birmingham	.....	G. H. Jack, Civil Engineer, Council House, Aston Manor	May 12
*House, Newton-street, Cyres, Devon	.....	Ellis & Co., Surveyors, Bedford Chambers, Exeter	May 13
Alterations to Chapel, Cemlyn, near Amlwch	.....	J. Owen, Architect, Menai Bridge, N. Wales	do.
Cast Iron Water Mains, Earlston, N.B.	.....	T. R. Atkinson, Civil Engineer, William Bank, Earlston	do.
Drainage Works at Schools	.....	J. Little, Engineer, Viaduct Chambers, Carlisle	do.
Drainage Works	.....	T. H. Cornish, Parade-street, Penzance	do.
Sewerage Works, Abercynon-road	.....	H. P. Linton, Town Hall, Mountain Ash	do.
Street Improvement Works, Dryden-street, &c	.....	Borough Engineer, Town Hall, Bootle	do.
Bridge Widenings, near Preston	.....	County Bridgemaster's Office, Preston	do.
*Storage Reservoir at Barnattin	.....	G. N. Kelly, Civil Engineer, Gas and Water Offices, Drogheda	do
Stabling and Cottages, Birkenshaw, Yorks	.....	Walker & Collinson, Architects, Swan-arcade, Bradford	May 14
Alterations to School, Arklow, Ireland	.....	H. Annesley, 29, Main-street, Arklow	do.
House, Cathcart Net Factory, Buckie, N.B.	.....	W. Marshall & Co., Buckie	do.
Sixty-five Houses, Skewen, Wales	.....	J. C. Rees, Architect, Neath	do.
Promenade Works, Walney	.....	Borough Engineer, Town Hall, Barrow	do
Chimney Shaft	.....	F. C. Ruddle, Architect, Union Offices, Blackburn	do.
Three Houses, The Villas, Egremont, Cumberland	.....	J. S. Stout, Civil Engineer, 35, Lowther-street, Whitehaven	do.
House at Chapel, Egremont, Cumberland	.....	do.	do.
Paving, &c., Wellington-street and others	.....	W. Welburn, Borough Surveyor, Town Hall, Middleton	do.
Rebuilding the Salutation Inn, London-rd., Coventry	.....	H. W. Chattaway, Architect, Trinity Church Yard, Coventry	do.
Court House, Padiham	.....	H. Littler, Architect, County Offices, Preston	do.
Building Flats, Potter-street, &c.	.....	J. Price, Engineer, Council House, Birmingham	do.
Additions to Factory, Avonvale-rd., St. Geo., Bristol	.....	H. Williams, Architect, Corn-street, Bristol	do.
Municipal Buildings, Grange-road	.....	F. Rennoldson, Architect, 37, King-street, South Shields	do.
Shops, &c., Fitzwilliam-street, Huddersfield	.....	J. Kirk & Sons, Architects, Huddersfield	May 15
Chapel, Blaengarw, Wales	.....	Mr. Hargest, Strand, Blaengarn	do.
Two Houses, Abertridwr, Wales	.....	T. Jones, 147, Trehafod-road, Hafod, Pontypridd	do.
Twenty-nine Cottages	.....	Surveyor, Town Hall, Brentwood	do.
Residence, Bridlington	.....	J. Earnshaw, Architect, Carlton House, Bridlington	do.
Greenhouse, Stable, &c., Victoria Park	.....	W. H. Jukes, Surveyor, Public Offices, Tipton	do.
Electric Lighting Station, Park Foot	.....	D. Ronald, Engineer, Burgh Chambers, Falkirk	do.
Additions to Workhouse	.....	W. H. Ward, Architect, Paradise-street, Birmingham	do.
*500 tons Blue Guernsey Granite	.....	Borough Surveyor, Town Hall, Bethnal Green	do.
*Cleaning and Painting Roof St. Pancras Station	.....	Company's Architect, Cavendish House, Derby	do.
Shop, Tir Phil, Wales	.....	T. V. Jones, Architect, Hengoed	May 16
Three Houses, Exwick, Exeter	.....	Harbottle & Son, Architects, County Chambers, Exeter	do.
Granite and Slag	.....	F. E. Burton, High-street, Castle Donington	do.
Road Materials, &c.	.....	Town Clerk, Municipal Buildings, Middlesbrough	do.
House and Shop, Well-street, Cefn, Wales	.....	J. W. Hughes, Architect, Dee Hurst, Llangollen	do.
Hall, &c., Dunleer, Ireland	.....	J. F. M. Gahon, Architect, Dundalk	May 17
Rowley Ragstone	.....	H. House, Borough Surveyor, Droitwich	do.
Two Villas, Bedale, Yorks	.....	H. G. E. Merrin, South End, Bedale	do
Several Houses, Ton Pentre, Glam.	.....	W. D. Morgan, Architect, Pentre, Rhondda Valley	do.
Well Sinking, &c.	.....	H. G. Keywood, Civil Engineer, Public Hall Chambers, Mallow	do.
Two House, Ballywilliam, Donaghadee, Ireland	.....	W. J. Fennell, Architect, 2, Wellington-place, Belfast	May 19
Lecture Rooms at Training College, Dublin	.....	J. F. Fuller, Architect, 179, Great Brunswick-street, Dublin	do.
Waterworks, Kilcool, Ireland	.....	B. Manning, The Workhouse, Rathdrum	do.
Bridge Works, Wedmore	.....	W. Lunn, Engineer, Queen-street, Bridgwater	do.
Cast Iron Mains	.....	E. Jones, Engineer, Treforest	do.
Institute, Ynysybwl, Wales	.....	J. Rees, Architect, Pentre	May 20
Reservoir	.....	L. G. Hall, Civil Engineer, Paradise-street, Rhyl	May 21
*Painting, General Repairs, &c., at Infirmary	.....	W. H. Chappell, Infirmary, Fulham-road, S.W.	do.
*Road-making, Paving and Lighting Works	.....	Borough Surveyor, Clattern House, Kingston-on-Thames	do.
Fog Signal House, &c., near Whitby	.....	The Lighthouse, Whitby	May 22
*Schools at Roman Hill, Lowestoft	.....	Clerk to the Board, 115, High-street, Lowestoft	May 23
*Retort House, &c.	.....	R. M. Cooper, 3, Queen's-road, Brentwood	do.
*8,000 feet Granite Kerb, &c.	.....	Borough Engineer, Town Hall, Brighton	do.
*Covered Play Shed, &c.	.....	Office of the Board, Embankment, E.C.	May 26
*New Infirmary	.....	Guardians' Engineer, 3, Vinty-street, College Green, Bristol	do.
*Tar-paving Playgrounds of Schools	.....	R. L. Curtis, Architect, 120, London Wall, E.C.	do.
Public Baths, Old Trafford, Manchester	.....	R. Woodhouse, Architect, 88, Mosley-street, Manchester	May 27
Engineering and Boilers, &c., Public Baths	.....	do.	do.
*Hot-water supply at Isolation Hospital, Stonebridge	Willesden U.D.C.	Engineer to the Council, Public Offices, Dyne-road, Kilburn, N.W.	do.
*Additions to Hospital, Thorpe	Easington R.D.C.	Farthing & Dunn, Architects, Newcastle-on-Tyne	May 28
*Hospital Buildings, Serpentine-rd., West Hartlepool	Borough of West Hartlepool	Borough Engineer's Office, West Hartlepool	May 29
Chalet, Pitville Park	Cheltenham Corporation	Borough Surveyor, Municipal Offices, Cheltenham	May 30
Church and Schools, Stockton-on-Tees	.....	W. J. Morley & Sons, Architects, 269, Swan Arcade, Bradford	No date
Alterations to Chapel, Wrexham	.....	T. G. Williams, Architect, 3, Cable-street, Liverpool	do.
Schools, Hyde Park, Doncaster	.....	Athron & Beck, Architects, Dolphin Chambers, Doncaster	do.
Warehouse, Short Hill, Nottingham	.....	H. J. Price, Architect, 24, Low Pavement, Nottingham	do.
Institute, Outwood, near Wakefield	.....	Wilson & Co., Architects, 12, East Parade, Leeds	do.
Schools, Apperly Bridge	.....	Danby & Simpson, Architects, 10, Park-row, Leeds	do.
House, Waterloo-road, Hunslet, Leeds	.....	do.	do.
Offices, Queen's Dock Side, Hull	Messrs. Ingham & sons	Gelder & Kitchen, Architects, 76, Lowgate, Hull	do.
Schools, Ilkley	.....	Garside & Pennington, Architects, Pontefract	do.
Cottage, Harrogate	.....	France, Milnes & Co., Architects, 90, Swan Arcade, Bradford	do.
37 Houses, Beechwood Mount, Headingley, Leeds	Mr. Jas. Parker	P. Robinson, Architect, 72, Albion-street, Leeds	do.
Additions to House, Bath-street, Hereford	.....	Brooks & Co., Architects, Palace Chambers, Hereford	do.
*Two Detached Houses, Pinner	.....	Clarke & Charles, Harrow-on-the-Hill	do.
*School, &c., Bloxwich, near Walsall	Primitive Methodist Trustees	Bickton & Farmer, Architects, Walsall	do.
*Erection of Palace Theatre, Halifax	.....	R. Horsfall & Son, Architects, Halifax	do.
*Laundry Buildings, &c.	Dudley Union	A. Marshall, Architect, King-street, Nottingham	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Application to be in
*Assistant Clerk of Works	Walthamstow School Board	3*l.* 3*s.* per week	May 16
*Surveyor's Assistant	Hampton U.D.C.	100*l.*	May 17
*Clerk of Works	Old Brentford School Board	3*l.* 3*s.* per week	May 20

Those marked with an asterisk (*) are advertised in this Number. *Competitions*, p. iv. *Contracts*, pp. iv. vi. viii. & x. *Public Appointments*, xviii. & xix.

PRICES CURRENT (*Continued*).

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14 10 0	16 0 0
Deals: best 3 by 9	13 10 0	15 0 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	10 10	11 10 0
Battens: best 2½ by 6 and 3 by 6	0 12 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	" " "
2 in. by 4 in. and 2 in. by 6 in.	8 10 0	9 10 0
1½ in. by 4½ in. and 2 in by 5 in.	8 0 0	9 0 0
Foreign Sawn Boards— 1 in. by 12 in. by 12 in.	0 10 0	more than battens.
¾ in.	1 0 0	"
Fir timber: Best middling Danzig or Memel (average specification)	At per load of 50 ft. 4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Swedish balks	2 15 0	3 0 0
Pitch-pine timber (30 ft.)	3 0 0	3 10 0
JOINERS' WOOD.	At per standard.	
White Sea: First yellow deals, 3 in. by 11 in.	22 0 0	23 0 0
3 in. by 9 in.	20 0 0	21 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	18 0 0
Second yellow deals, 3 in. by 11 in.	18 0 0	20 0 0
" " 3 in. by 9 in.	16 10 0	18 10 0
Battens, 2½ in. and 3 in. by 7 in.	13 0 0	14 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	14 0 0	15 10 0
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	20 0 0	21 0 0
Do. 3 in. by 9 in.	17 0 0	18 0 0
Battens	13 0 0	14 0 0
Second yellow deals, 3 in. by 11 in.	15 0 0	16 10 0
Do. 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Third yellow deals, 3 in. by 11 in.	12 10 0	13 10 0
Do. 3 in. by 9 in.	12 0 0	13 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg: First white deals, 3 in. by 11 in.	14 0 0	15 0 0
" " " 3 in. by 9 in.	13 0 0	14 0 0
Battens	11 0 0	12 0 0
Second white deals 3 in. by 11 in.	13 0 0	14 0 0
" " " 3 in. by 9 in.	12 0 0	13 0 0
" " " battens	9 10 0	10 10 0
Pitch-pine: deals	16 0 0	18 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes	32 0 0	33 10 0
Broads (12 in. and up)	2 0 0	more.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6	0 4 6
Dantzig and Stettin Oak Logs— Large, per ft. cube	0 2 6	0 3 0
Small " "	0 2 3	0 2 6
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 7½	0 0 8
¾ in. do. do.	0 0 7	- - -
Dry Mahogany— Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	16 0 0	20 0 0
American Whitewood Planks— Per ft. cube	0 3 0	0 3 6
Prepared Flooring—	Per squares.	
1 in. by 7 in. yellow, planed and shot	0 13 0	0 16 6
1 in. by 7 in. yellow, planed and matched	0 13 6	0 17 6
1¼ in. by 7 in. yellow, planed and matched	0 15 0	1 0 0
6 in. at 6d. per square less than 7 in.		
1 in. by 7 in. white, planed and shot	0 11 0	0 12 6
1 in. by 7 in. white, planed and matched	0 11 6	0 13 6
1¼ in. by 7 in. white, planed and matched	0 13 6	0 15 6
6 in. at 6d. per square less than 7 in.		

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 2 6	7 2 6
Compound Girders " "	7 17 6	8 17 6
Angles, Tees and Channels, ordinary sections	7 17 6	8 17 6
Flitch Plates	8 5 0	8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 0 0	8 0 0

METALS.

	Per ton, in London £ s. d.	£ s. d.
IRON— Common Bars	7 15 0	8 5 0
Staffordshire Crown Bars, good merchant quality	8 5 0	8 15 0
Staffordshire "Marked Bars"	10 10 0	- - -
Mild Steel Bars	9 0 0	9 10 0
Hoop Iron, basis price	9 5 0	9 10 0
" " galvanised	10 0 0	- - -
(* And upwards, according to size and gauge.)		
Sheet Iron, Black.— Ordinary sizes to 20 g.	10 0 0	- - -
" " to 24 g.	11 0 0	- - -
" " to 26 g.	12 10 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality.— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0	- - -
" " 22 g. and 24 g.	13 5 0	- - -
" " 26 g.	14 5 0	- - -

PRICES CURRENT (*Continued*).

METALS.

	Per ton, in London: £ s. d.	£ s. d.
IRON— Sheet Iron, Galvanised, flat, best quality:— Ordinary sizes to 20 g.	16 0 0	- - -
" " 22 g. and 24 g.	16 10 0	- - -
" " 26 g.	18 0 0	- - -
Galvanised Corrugated Sheets.— Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0	- - -
" " 22 g. and 24 g.	13 5 0	- - -
" " 26 g.	14 5 0	- - -
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12 0 0	- - -
" " 22 g. and 24 g.	13 0 0	- - -
" " 26 g.	14 5 0	- - -
Cut nails, 3 in. to 6 in. (Under 3 in. usual trade extras.)	9 5 0	9 15 0

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	14 7 6	- - -
Pipe in coils	14 17 6	- - -
Soil Pipe	17 7 6	- - -
ZINC—Sheet— Vieille Montagne ton	24 10 0	- - -
Silesian	24 0 0	- - -
COPPER— Strong Sheet per lb.	0 1 0	- - -
Thin "	0 1 1½	- - -
Copper nails "	0 1 1½	- - -
BRASS— Strong Sheet "	0 0 11	- - -
Thin "	0 1 1	- - -
TIN—English Ingots "	0 1 3½	- - -
SOLDER—Plumbers' "	0 0 6½	- - -
Tinmen's "	0 0 8½	- - -
Blowpipe "	0 0 10	- - -

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d. per ft. delivered.
" fourths	2¾d. " "
21 oz. thirds	3½d. " "
" fourths	3d. " "
26 oz. thirds	4½d. " "
" fourths	4d. " "
32 oz. thirds	5½d. " "
" fourths	5d. " "
Fluted sheet, 15 oz.	3d. " "
" 21 "	4d. " "
½ Hartley's Rolled Plate	2d. " "
⅝ " " "	2½d. " "
¾ " " "	2¾d. " "

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 2 8
" " " in barrels	"	0 2 9
" " " in drums	"	0 2 11
Boiled " " in pipes	"	0 2 10
" " " in barrels	"	0 2 11
" " " in drums	"	0 3 1
Turpentine, in barrels	"	0 2 8
" in drums	"	0 2 10
Genuine Ground English White Lead	per ton	21 0 0
Red Lead, Dry	"	20 10 0
Best Linseed Oil Putty	per cwt.	0 8 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Elastic Copla Varnish for outside work	0 16 6
Best Elastic Copa Varnish for outside work	1 0 0
Best Elastic Carriage Varnish for outside work	0 16 0
Best Hard Oak Varnish for inside work	0 10 6
Best Extra Hard Church Oak Varnish for inside work	0 10 6
Fine Hard Copal Varnish for inside work	0 16 0
Best Hard Copal Varnish for inside work	1 0 0
Best Hard Carriage Varnish for inside work	0 16 0
Extra Pale Paper Varnish	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
Best French and Brush Polish	0 0 0

TO CORRESPONDENTS.

"Canvass" (You did not make your meaning clear. The model in question came from Picinisco, near Monte Cassino).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR: those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted*

BROMLEY (Kent).—For alterations and additions to private residence. Mr. G. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C.:—

T. D. Graty* £331

BARNSLEY.—For the supply of slag and whinstone Hoyland, for the Hoyland Nether Urban District Council. Mr. W. Percy Young, Surveyor, Town Hall, Hoyland near Barnsley:—

2½-in. Whinstone.

	s. d.
Ord & Maddison, Darlington	12 7* per ton

(Delivered Birdwell, Great Central.)

Slag.

	Unbroken. per ton. s. d.	Broken. per ton. s. d.	Screenings per ton. s. d.
Newton, Chambers, & Co., Thorncliffe, near Sheffield	3 3*	4 6*	4 0*
(To Hoyland, Silkstone Sidings.)			
Newton, Chambers, & Co.	3 3*	4 4*	3 10*
(To Elsecar, Midland.)			
Newton, Chambers, & Co.	3 1	4 4	3 10
(To Elsecar, Great Central.)			
Newton, Chambers, & Co.	3 0	4 3	3 9
(Wentworth, Midland.)			
Newton, Chambers, & Co.	3 0	4 3	2 9
(Birdwell, Great Central.)			

CANTON (Cardiff).—For enlarging St. John's Church, Canton. Mr. Geo. Eley Halliday, architect, 14, High-street, Cardiff, and at Llandaff. Quantities by Mr. John W. Rodger, 14, High-street, Cardiff:—

Lattey & Co., Ltd.	£2,871 15 2	F. Couzens	£2,590 0 0
A. W. Cadwallader	2,770 0 0	C. Beames & Nephew	2,580 0 0
J. Blight	2,705 0 0	W. T. Morgan	2,445 0 0
Couzens & Co.	2,700 0 0	C. C. Dunn	2,395 0 0
Shepton & Sons	2,675 3 0	Knox & Wells, Bangor-st.*	2,393 0 0

CHEAM, SUTTON (Surrey).—Block No. 2 of six cottages, including fencing site, paving, drainage, &c., for Messrs. C. T. Brock & Co. Messrs. Barrett & Driver, architects, 53, Blomfield-road, Maida Vale:—

W. Martin, Croydon* £1,120

FARNBOROUGH (Kent).—Rebuilding the Woodman Inn, including pulling down old building, &c., for Messrs. Fox & Sons. Messrs. Barrett & Driver, architects, 53, Blomfield-road, Maida Vale, W.:—

C. E. Bulley	£1,620	Smith & Sons	£1,428
W. Owen	1,560	Wallis & Sons, Maidstone*	1,364
Somerford & Son	1,510		

FAWKHAM (Kent).—For the erection of two cottages Mr. G. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C.:—

A. W. Martin	£800	C. S. Lucas	£438
E. R. Thorne	725	R. W. Gilham*	475
S. Jessop	630		

GLOUCESTER.—For the erection of school buildings, Linden-road, for the School Board. Mr. H. Medland, architect, 14, Clarence-street, Gloucester:—

Fincher & Co.	£5,725 0	Colborne	£4,736 17
W. T. Nicholls	5,470 0	W. Jones	4,710 0
King & Sons	4,988 0	Smith & Pitt	4,645 0
T. Gurney	4,977 0	J. T. Williams	4,574 0
Byard & Son	4,930 0	Joseph Gurney, Gloucester‡	4,297 5
Freeman & Jones	4,897 0		
Bowers & Co.	4,797 15		

‡ Accepted, subject to the approval of the Board of Education.

Wood Block Flooring.

	Red Wood.	Maple.
Joseph Gurney	£156 10 0	£219 10 0
J. T. Williams	140 0 0	296 0 0
Smith & Pitt	190 0 0	252 10 0
W. Jones	203 0 0	265 10 0
Colborne	156 15 0	195 10 0
Freeman & Jones	157 13 0	242 3 0
King & Sons	170 0 0	264 0 0
W. T. Nicholls	169 15 5	220 11 0
Fincher & Co.	230 0 0	315 0 0
W. Duffy (accepted for maple) London	164 7 11	*195 19 11
Roger Lowe	156 0 0	203 0 0
Homan & Co.	157 13 0	204 10 6
W. Wibby	188 11 0	228 11 0
Ebner & Co.	207 14 6	244 13
Baylis & Co.	180 2 3	276 19
Geary, Walker, & Co.	156 10 0	338 15
Ashby & Co.	4s. 3d. per yd.	—
Byard & Son	157 0 0	—

HAMBLEDON (Surrey).—For the supply of road materials for the Rural District Council. Mr. G. Lintott, surveyor, Cranleigh:—

	s. d.
Mendip Lime Stone, per Ton.	
Wainwright & Co., Shepton Mallet	9 8
Moonshill Basalt, per Ton.	
Wainwright & Co., Shepton Mallet	12 8
Griff Granite, per Ton.	
Griffiths & Co., Bishopsgate-st. Without	14 0
Leicester Granite (Whitwick).	
Whitwick Granite Co., Leicester	13 10
Leicester Granite (St. Bernards).	
Whitwick Granite Co., Leicester	12 10
Cherbourg Quartzite.	
Road Maintenance Supply Co., Gravesend	13 10
Dug Flints, Unbroken, per Yard.	
F. W. Collins, Hale Farnham	6 8
Dug Portslade Flints, Unbroken, per Yard.	
Wm. Hudson, Brighton	6 4
Farnham Gravel, Coarse.	
Farnham Gravel Co., Farnham	5 11
Farnham Gravel, Fine.	
Farnham Gravel Co., Farnham	5 9
Farnham Gravel, Coarse.	
Ch Paine, Farnham	5 10

[*See also next page.*

HARROW.—For two small detached houses to be erected in Pinner View, Harrow, under the supervision of Messrs. Clarke & Charles, architects, Harrow :—

M. Dymock	£1,265	J. Rackham	£1,140
Lee & Co.	1,225	Simmons, Willesden*	1,133

LONDON.—For alterations and repairs to private residence, Sydenham Hill, S.E. Mr. G. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C. :—

Bowyer & Co.	£694 0	J. H. Smith	£623 5
Somerford & Son	674 0	F. J. Moreton*	594 0

LONDON.—Work at St. James' Hall, Nos. 21 and 23, Piccadilly. Mr. Walter Emden, architect, 105 and 106, Strand, W.C. :—

Bywater & Co.	£15,162	Trollope & Co.	£14,555
Howard & Co.	15,000	Hall, Beddall, & Co.	14,470
Spencer Santo	14,985	Roffey	13,990
Holliday & Greenwood	14,777	Lovatt & Co.	13,950
Patman & Fotheringham	14,740	Carmichael	13,862
		A. J. Bateman	11,914

ORPINGTON (Kent).—For alterations and additions to private residence. Mr. G. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C. Quantities by Messrs. Stanger & Son :—

Stebbings & Pennett	£1,293 10	Somerford & Son	£986 10
Garrett & Sons	1,205 0	R. A. Lowe	974 0
T. Knight	1,035 0	T. D. Gratyt	922 0

† Accepted with modifications.

PENYGRAIG (Glamorganshire).—For rebuilding "Soar" Baptist Chapel, Penygraig, Glam., for the trustees. Messrs. R. S. Griffiths & D. Pugh-Jones, architects, Tonypandy and Cardiff :—

Jenkins & Son, Porth, nr. Pontypridd* £4,800

SHEFFIELD.—For shed over yard at works, Moore-street, Sheffield, for Messrs. Joseph Pickering & Sons, Limited. Messrs. Hall & Fenton, architects and surveyors, 14, St. James-row. Quantities by architects :—

A. Cooke	£172 5 0	Thos. Astling	£143 5 0
E. Moore	163 8 11	T. Wilkinson & son, Guernsey-road*	138 13 0
G. Alley	160 0 0	H. Boot & Son	135 0 0
C. H. Gillam	159 19 0		
J. Daniels	151 19 8		

[All of Sheffield.]

TENDRING (Essex).—For additions, &c., to workhouse, for the Guardians. Mr. F. Whitmore, architect, 17, Duke-street, Chelmsford :—

Kerridge & Shaw	£4,093 5 3	F. C. Thurman	£3,458 0 0
Saunders & Son	3,945 0 0	Dupont & Co.	3,375 0 0
F. Bennett	3,900 0 0	Jas. McKay	3,331 0 0
E. West	3,808 0 0	W. J. Bloxham	3,272 0 0
Grimwood & Sons	3,692 0 0	E. Saunders	3,248 0 0
H. W. Gledwell	3,590 0 0	Smith & Beaumont, Harwich*	3,208 0 0
A. Suckling	3,478 0 0		

TOTTENHAM.—For the erection of new billiard-room, saloon bar, &c., at the Railway Tavern, White Hart-lane, for Mr. W. Lovery. Mr. Augustine C. Green, architect, 111, Fore-street, Upper Edmonton, and 40, Bruce Castle-road, Tottenham :—

Knight & Son* £2,985

TOTTENHAM.—For the conversion of Nos. 449, 451, and 453, High-road, Tottenham, into houses and shops, for Mr. R. Smith. Mr. Augustine C. Green, architect :—

W. H. Howell	£1,595 0	W. Eason	£1,450 0
J. Groves	1,479 10	W. J. Brysouth	1,240 0
Green & Boxall	1,475 0	W. Moore*	963 10

WADSLEY BRIDGE (Sheffield).—For alterations and additions to the Gate Inn, Wadsley Bridge, near Sheffield, for Messrs. the Directors of Thomas Rawson & Co., Ltd. Messrs. Hall & Fenton, architects and surveyors, 14, St. James-row, Sheffield. Quantities by the architects :—

R. S. Saville	£510 0	G. Allen	£394 10
T. Margerrison	420 0	J. S. Scanby	363 0
Dyson, Son, & Gregory	419 10	G. & C. Earl	358 0
J. Bertram	400 0	W. Ainsley, Whitehouse-lane*	354 10

[All of Sheffield.]

WEALDSTONE.—For six villas to be erected in Gordon-road, Wealdstone, for Mr. W. Ritter, under the supervision of Messrs. Clarke & Charles, architects, Harrow :—

M. Dymock	£2,040	Hastings & Ladley	£1,638
F. W. Wale	1,760	Pickering & Besant	1,535
F. Price	1,758	C. Simmons, Willesden*	1,474
F. & W. Bettesworth	1,725		

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